

PLAN 4000™

Print Server Installation and Operation Manual

NESTAR

NESTAR SYSTEMS, INCORPORATED

PLAN 4000 (TM)

PRINT SERVER
INSTALLATION AND OPERATION MANUAL

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2585 E. Bayshore, Palo Alto, California, 94303
(415) 493-2223 Telex 171420 Nestar PLA

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How to Use This Manual

This document is directed to those who are installing, configuring and maintaining the Print Server Subsystem software. It assumes a general knowledge of the PLAN 4000 system and its use in the various network user and server station environments. For more information refer to the following manuals:

The PLAN 4000 General Information Manual

The PLAN 4000 File Server User's Manual

The PLAN 4000 File Server User Guides
for your environments

The PLAN 4000 Physical Planning and
Installation Manual.

Chapters 1 and 2 of this manual are introductory. Chapter 1 explains how the print servers are integrated into networks which have more than one print server, and how print servers are used when an installation has more than one connected segment. Chapter 2 provides an overview of how the print server software is booted on the print server. It also explains how the server software processes and performs the requests which are queued up by the users.

The tasks of the system manager with respect to the print system are detailed in Chapters 3 through 5. They are:

1. Determining how many print servers, printers and setups will be supported and what they will be called (Chapter 3).
2. Installing the software (Chapter 3).

HOW TO

3. Configuring the print server software so that it knows what print servers, printers, and setups are available (Chapter 4).
4. Maintaining system print server queues and assisting users who require special printer setups (Chapter 5).
5. Understanding use of print server user software in appropriate user environments, as explained in the appendices of the Print Server User's Manual.

The appendices of this manual contain environment specific instructions for installation, configuration and maintenance of the Print Server Subsystem software. Refer to the appropriate appendices for the environments that your installation supports.

The material in this document applies to Version 2.2 of the Print Server Subsystem software.

We welcome criticisms and suggestions. Forms for reporting program errors and documentation errors or inadequacies are provided at the back of this manual.

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Chapter 1

Introduction to the Print Server Subsystem

1.0 The Print Server Subsystem

The Print Server Subsystem is designed for ease of use. To print a file, users simply execute a print request program from their operating system environment.

These print request programs prompt for the names of the files that the user wants printed, the number of copies to be printed, type of paper to be used, and other options for the job. The options on the print request menu are discussed in detail in Chapter 2 of the Print Server User's Manual.

The print request programs take the information given them and place it on one of the network's hard disks, in a newly created "request" volume.

Meanwhile, the printers on the network are controlled by "print server" stations. Each print server station runs a server program that causes it to check the request queue on the file server disk every minute or so.

When a server station finds a new request, it transfers it to a different queue where it waits its turn to be printed. The options that the users specified when issuing the requests may prevent those requests from being processed in the exact order that they were issued. We explain this in greater detail below.

INTRODUCTION

1.1 Multiple Printers and Multiple Setups

The PLAN 4000 system may have more than one print server available. In some cases, several workstations are dedicated as print servers, with each workstation controlling several printers.

The print programs allow users to choose the printer and print server to do their job. If any printer or print server is acceptable, the programs allow users to specify "ANY".

Many printers can be set up in more than one way. For example, different colored ribbons or sizes of paper may be used for different jobs. For instance, one printer might be used to print labels, checks, and documents. When a printer is set up to print checks, it can not print documents because the parameters and paper are not appropriate. The print server software checks the requirements for a particular job against the current printer configuration. If it can perform the job according to user print request specifications, the job will be completed as soon as it reaches the top of the queue. If the job can not be completed with the current printer setup, it will be left in the queue until the system manager has reconfigured the printer and used the Configure Server utility to change the Server program's current setup.

1.2 Multiple File Servers and Multiple Networks

Some PLAN 4000 systems have more than one file server station. Each file server controls its own hard disks. The print servers can check with each file server on the network for print requests.

INTRODUCTION

In all operating system environments, users can specify files to be printed from any file server in the network that the system manager allows. Print requests queued on the default file server can specify files to be printed that reside on other file servers.

A single print server can serve several physical network segments at once. The server is simply connected to the different segments by network interface cards placed in different slots in the server. If a print server is connected to multiple segments, the users of these segments can issue requests involving files stored on any connected segment's file server.

The system manager will configure the print server software to know the names of available file servers, print servers, printers and setups. After configuration is completed, the system manager should inform users of the names that are to be used in the print request form to specify particular file servers, print servers, printers and setups.



Chapter 2

The Print Server Station Operation Overview

2.0 Introduction

The print server software consists of programs that run at the server stations and other programs that run in various user workstation environments. These server and user station programs also have text files that are associated with them. In some of the environments, the print programs draw default values from text files that the user and system manager can create. The server software relies on textfiles for much of its configuration information. The system manager configures these textfiles using the text editor under the appropriate environment. Chapter 4 of this manual describes configuration of the print server software.

The user PRINT program creates small print request volumes that are stored under a special directory on the shared hard disk. Stations dedicated as print servers read these request volumes and cause the desired files to be printed out on printers that they control. (See Figure 1).

SYSTEM OPERATION

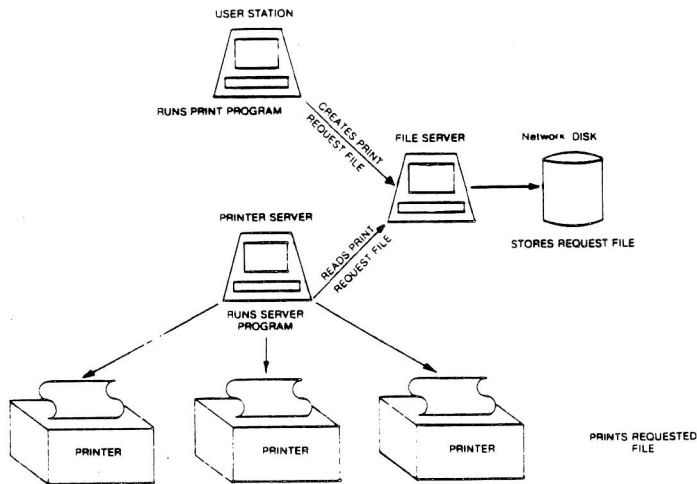


Figure 1

Printers shared by network users must be controlled by a print server station. One server can control multiple printers, but only one job can be printed at a time via one print server.

Multiple print servers are required to print multiple jobs simultaneously.

Print server stations can be used to control as many printers as they have interface capability to support. Server stations can be used as workstations when print server duties are not required.

Print servers can access multiple file servers on one network and can be connected to more than one network at a time. The capacity of the dedicated server to support network and printer interface determines how many printers and network segments can be supported. An Apple // dedicated as a print server can support a combination of up to seven network interface and printer interface cards. For example, one Apple // can support four printers and serve three network segments. If many interface cards are installed in an Apple //, an external power supply and a cooling device may be required for reliable operation. Print Server Subsystem operation is illustrated in Figures 2 and 3.

SYSTEM OPERATION

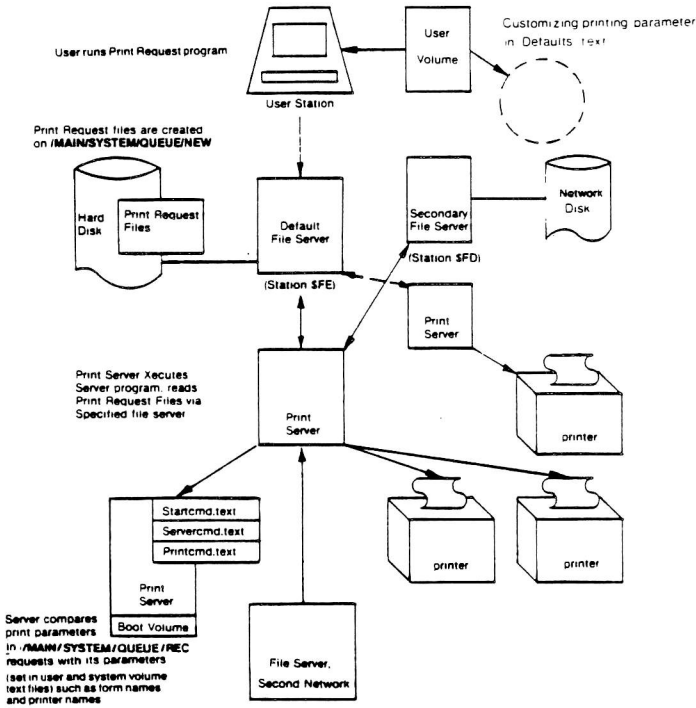


Figure 2

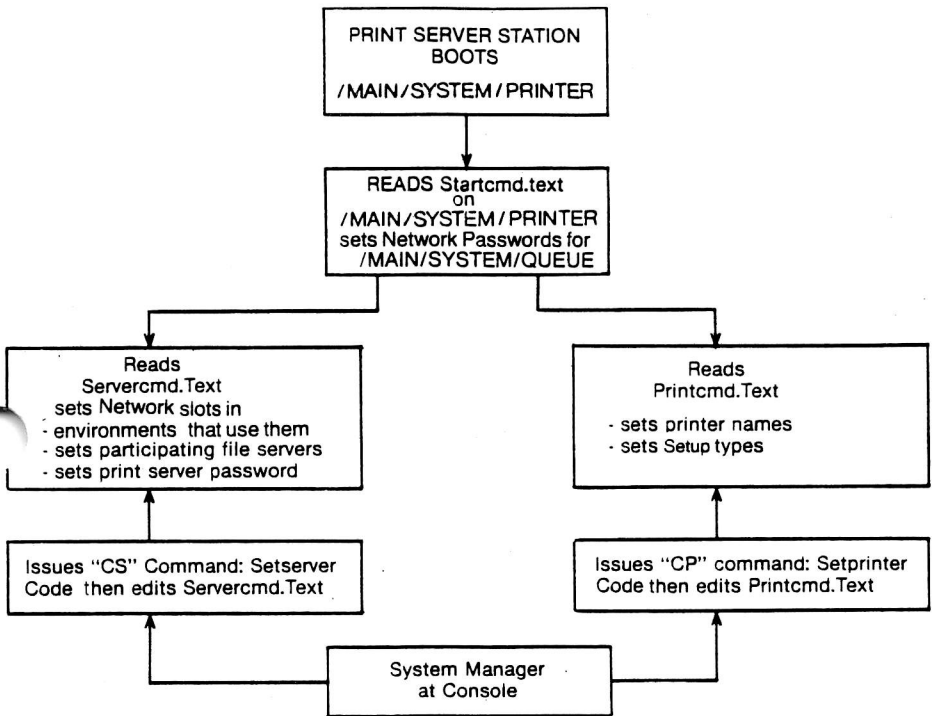


Figure 3

The following paragraphs describe the above figures in some detail. All material presented, however, is reiterated and elaborated upon in

the chapters to follow.

1. Users execute a print request from their operating system environments (Figure 2). The PRINT programs create network files that are listed in the network directory

/MAIN/SYSTEM/QUEUE/NEW

on the workstation's current default file server. The print request files contain the names of files to be printed, together with various scheduling and formatting options that users may specify for the printing job.

(All Network files beginning with the pathname /MAIN/SYSTEM/QUEUE and used by the print server software are created by the print request program or by the print server programs the first time that the programs are run, or in advance, by the system manager).

2. Some of the environment software packages are configured such that the print request program is invoked when it has been selected from a menu. These environments also allow the print request program to be invoked directly. In any case, the procedure for invoking the print request menu is described in the appendix for your environment.
3. The print request form is used to specify options for printing jobs. Chapter 2 of the Print Server User's Manual explains this in detail.

In most environments there are two defaults files; one resides on the user's volume and one resides on the shared library volume. The user can edit his or her defaults file to specify what printer setup, how many copies,

and which type of printer he or she usually wants. The system manager can edit the shared library defaults file to specify the names of the file server and print server that the workstations will most frequently use. When the print request form is invoked, the user's defaults are automatically read into the form. If the user has not specified defaults for all the blanks, then the shared library volume defaults file will be read in to fill in the remaining default values. If neither file specifies defaults for one or more types of options, those lines will be empty and the user can fill them in at the time of the request.

The user can replace any defaults displayed in the form with different values if his or her particular request requires different values for some of the options.

The procedure of setting defaults under different operating system environments varies somewhat. The above description is a generalized example. Refer to the appendices of the Print Server User's Manual for specific instructions for specifying print option defaults.

4. The Apple // becomes a dedicated print server when it boots from a virtual volume called /MAIN/SYSTEM/PRINTER. If there are multiple print servers on a network segment, each must boot its own volume. Sample volume names:

/MAIN/SYSTEM/PRINTERA

/MAIN/SYSTEM/PRINTERB

...

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5. After the print server boots, a program called SERVER runs automatically. It checks for new volumes in /MAIN/SYSTEM/QUEUE/NEW on each file server on each network segment that it serves, SERVER reads new request volumes when they are found, moves them to /MAIN/SYSTEM/QUEUE/REC, lists them in the volume /MAIN/SYSTEM/QUEUE/MASTER (one request per block), and transfers control to a driver program, which prints the specified files on the correct or "any" printer. SERVER then removes the request file names from /MAIN/SYSTEM/QUEUE/REC.

Some requests remain waiting in the queue because print system parameters that they specify are not currently available. For example, the wrong form may be in the printer or the user may have made a mistake in entering the print request. Such requests remain in /MAIN/SYSTEM/QUEUE/REC, and are also listed in /MAIN/SYSTEM/MASTER. The Queue Maintenance option available from the server menu allows the system manager to display and kill old print requests. This option is described in Chapter 5.

6. Parameters such as printer names, setup types, and file server addresses are set by SERVER from values found in Servercmd.Text and Printcmd.Text on the print server's boot volume /MAIN/SYSTEM/PRINTER (Figure 3). The SERVER program reads Servercmd.Text and Printcmd.Text each time that it is executed, and uses the names set there to identify printers, the paper or forms they use, other details of printer setup, and the names of the server boot volume header files that contain title page formats for the printers.

Multiple printers and file servers (once

physically configured), can be "attached" and "detached" using values set and changed in these files.

The system manager configures (edits) Servercmd.Text and Printcmd.Text when the print system is installed.

7. All default parameters for the print system set by Servercmd.Text and Printcmd.Text can be changed from within the server program (that is, at the print server console), using the "CS" (Configure Server) and "CP" (Configure Printer) commands. The CS and CP commands, typed in from the server menu, cause the programs Setserver.Code and Setprinter.Code on the print server boot volume to be executed.
8. Textfiles are also used to set header formats for print jobs. These textfiles, can be edited using the Pascal Editor.
9. The system manager is responsible for customizing and maintaining the system textfiles. This responsibility includes setting various system parameters and defaults, cleaning out the queue files, and reconfiguring (editing) the textfiles as needed, to allow waiting jobs to be printed. These tasks are discussed in Chapters 5.

2.1 Executing the Server Program

All print servers boot from volumes identical to

/MAIN/SYSTEM/PRINTER

(but with volume names unique to the individual station; e.g., /PRINTERA, /PRINTERB,...) and

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mount them READ/WRITE UPDATE.

When a print server boots its /MAIN/SYSTEM/PRINTER volume, the volume's Startcmd.text file is read and any passwords necessary are set. Then the server program on that volume is chained to and executed. (SERVER passwords are discussed below in Section 2.1.3)

The server program checks for new print requests once a minute on network file server disks, and processes any requests that are found, if the request's print parameters match those set by the system manager.

2.1.1 Automatic Startup of Print Server Software

A profile record must be set up for each print server in order for the print server to boot the /MAIN/SYSTEM/PRINTER volume automatically at power on. The file server user's guides for each environment explain automatic start up features. If the Apple // is being used as a print server, refer to the PLAN 4000 Apple // User's Guide.

2.1.2 The Server Program's Startup Commands

Bootable file server volumes such as

/MAIN/SYSTEM/PRINTER

may contain a textfile of "startup" commands. These are commands that are read and executed automatically by the system whenever the volume is booted. Again, these automatic startup features are described in the user guides for each environment. If an Apple // is used as the print server, refer to be the PLAN 4000 Apple //

User's Guide.

The only startup commands required in the /MAIN/SYSTEMS/PRINTER start command text file (unless passwords are set) are: SWAP ON to cause swapping to be turned on and a CHAIN command line that causes the SERVER program to be chained to and executed.

When /MAIN/SYSTEM/PRINTER is booted, the volume's start command text file is read. This file contains the command line necessary to invoke the SERVER program.

The start command text file serves one other purpose. If a network password has been set (Section 4.1) on the print request files and master list of requests residing within

/MAIN/SYSTEM/QUEUE

the Startcmd.text file provides the password, so that the Server program can read request files listed in the directory

/MAIN/SYSTEM/QUEUE/NEW

and change their pathnames, moving them to

/MAIN/SYSTEM/QUEUE/REC

and recording them in the volume

/MAIN/SYSTEM/QUEUE/MASTER

If no passwords have been set on the /MAIN/SYSTEM/QUEUE files and directories, the Startcmd.Text format is simply

```
; Comment lines
SWAP ON
```

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CHAIN SERVER,INITCHECK

Here, by virtue of the "INITCHECK" command, Startcmd causes all server parameters to be reset to those listed in Servercmd.Text and Printcmd.Text. The server program then checks all print request queues and begins operation.

2.1.3 Password Protection on /MAIN/SYSTEM/QUEUE

The usage and access facilities of the PLAN 4000 system are discussed fully in the File Server User's Manual. This manual assumes a general knowledge of the use of passwords to control access to network files. The use of passwords to protect print request files is discussed in Section 4.1 of this manual. Users must have create access to

/MAIN/SYSTEM/QUEUE/NEW

and read access to

/MAIN/SYSTEM/QUEUE/MASTER

When the Server program checks directory

/MAIN/SYSTEM/QUEUE/NEW

for new print request files, it renames any new files found, placing them in

/MAIN/SYSTEM/QUEUE/REC

In this way, the program differentiates between new, unprocessed requests and those being acted upon or held in the queue pending system-parameter changes. In addition, information on all queued requests is listed in the virtual volume

/MAIN/SYSTEM/QUEUE/MASTER

For this reason, SERVER must have delete access to

/MAIN/SYSTEM/QUEUE/NEW

and erase access to the files within it, as well as create and write access to

/MAIN/SYSTEM/QUEUE/REC

and its files. SERVER must also have create and write access to

/MAIN/SYSTEM/QUEUE/MASTER

whether or not any passwords may have been set for those directories and files. Passwords set must be placed in Startcmd.Text, for use by the printer program. (See Section 4.1)

If only one file server is to be serviced, the password can be set with a single line:

NOECHO NET SET PRVPW=XYZ

If passwords are to be set for more than one file server, file server slot and station numbers for each file server must be specified before the password is set:

NOECHO NET SET FS SLOT N STN \$nn
NOECHO NET SET PRVPW=XYZ

Here, N=network interface card slots, and \$nn=file server address (hexadecimal). For example,

NOECHO ; This is Startcmd.Text...8/81

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```
NOECHO NET SET FS SLOT 6 STN $FE
NOECHO NET SET PRVPW=XYZ
NOECHO NET SET FS SLOT 4 STN $FE
NOECHO NET SET PRVPW=XYZ
NOECHO NET SET FS SLOT 6 STN $FD
NOECHO NET SET PRVPW=XYZ
```

```
NOECHO ; NOW START THE PRINT SERVER...
NOECHO SWAP ON
NOECHO CHAIN SERVER,INITCHECK
```

In this sample STARTCMD.TEXT, the print server workstation is connected to two local network segments via interface cards in slots 4 and 6, and serves file servers \$FD and \$FE on the Slot 6 net and file server \$FE on the Slot 4 net.

The server boots by default from slot 6, \$FE. Password XYZ is set. Startcmd.text then changes the default channel to slot 4. Password XYZ is set. The default channel is changed back to slot 6 (but to station \$FD). Password XYZ is set. The default channel is then returned to the original Slot 6, Station \$FE by server.

The word "NOECHO" at the beginning of each line will suppress the screen display of these commands.

Startcmd.text then chains to SERVER.CODE.

2.2 Server Program Operation

When /MAIN/SYSTEM/PRINTER is booted, and Startcmd.Text chains to Server.Code, the server program first reads two text files on the /MAIN/SYSTEM/PRINTER boot volume, named Servercmd.Text and Printcmd.Text (discussed in detail in Sections 4.3.1 and 4.3.3). These text files contain information necessary to configure

the system, such as printer and file server names and addresses, the setup types currently available to the printers, and the numbers of those slots containing FS interface cards.

Having read these files, the server program will connect to any networks/file servers specified in them, and check for print request files.

As the server program begins execution, the print server screen will display the print server welcome banner and text that tracks the server's startup activity:

16:18 CONNECTING TO FS CENTRAL....

16:18 CONNECTING TO FS SECONDARY....

16:18 CONNECTING TO FS OTHERNET....

WAITING...[45]

In this example, Server.Code has read the file's Servercmd.Text and Printcmd.Text on its boot volume, to configure printer and server parameters. In this example these textfiles specify three file servers, on two networks, to be serviced: CENTRAL and SECONDARY on one network, and OTHERNET on another.

Checking the QUEUE files for the CENTRAL and SECONDARY file servers on the boot network, and the OTHERNET file server on a second network, and finding no requests, the print server waits, rechecking the queue directories every 60 seconds.

NOTE: File servers can be given names in the FS system (by setting up a profile record). These names can be used but not changed by the print

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server programs. In the event that the file servers are not named, SERVER will display the station addresses, in hexadecimal; e.g., \$FE, \$FD, and \$FE, instead of "CENTRAL", "SECONDARY", and "OTHERNET". Print Server station names can be assigned by the system manager. All file server and print server names should be unique.

2.3 Finding and Printing a Request

When the server finds evidence of a new print request (in /MAIN/SYSTEM/QUEUE/NEW), a message such as

```
15:21 CENTRAL PRINT REQ 411 QUEUED
```

will be displayed on the server station screen.

When the user print request programs queue print requests, they also trigger the server program to examine /MAIN/SYSTEM/QUEUE/NEW. In the example above, a print request has been queued in the request queue of the file server named CENTRAL. The request is assigned queue number 411 and is moved from the NEW to the REQUEST (REC) category (and in fact, has the pathname /MAIN/SYSTEM/QUEUE/REC/411).

This request will contain:

- name of the file(s) to be printed
- file server pathname of volume containing the file(s)
- file server for disk containing the file(s)
- title to be printed at the top of each page of the job
- number of copies to be printed
- print server to be used
- printer to be used
- page length (eject value)
- setup to be used
- priority

When Server.Code is first executed, it reads Servercmd.Text and Printcmd.Text on its boot volume. From this text file it takes the current names and addresses of the file servers and printers online. It also takes the setup associated with each printer. If the print server specified in the text file is the one reading the request file, and if the necessary file server is online, and if the printers and setup parameters in the request match those currently set in Servercmd.Text and Printcmd.Text, a message such as

```
13:21 PRINT: CENTRAL REQUEST 411:
          ACCOUNTING SETUP=STANDARD
          PASCAL /MAIN/USERS/SMITH/A
          File EXAMPLE
```

or

```
13:21 PRINT: SECONDARY REQUEST 511:
          FISCAL SETUP=STANDARD
          SPOOLED OUTPUT
```

will be displayed on the server station screen.

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The Print Server User's Manual discusses how the user specifies the parameters that go into the print request file. Chapter 5 of this manual discusses how parameters such as printer names and setup types are changed for the print servers by the system manager, by changing Servercmd.Text and Printcmd.Text files.

(The times listed in the display above are best used as approximations of the times when requests were made, due to the manipulation of request files by the server program after they are queued. The exact chronological sequence of queued requests may not be reflected exactly by the times displayed.)

Having matched the job parameters specified in a request file with the system parameters currently set, the server program chains to the appropriate driver program, also on the boot volume, to print out the specified file(s). In the first example, file EXAMPLE, located on /MAIN/USERS/SMITH/A is to be printed on the printer named "ACCOUNTING", using the setup named "STANDARD". As the job is begun, the message

PRINTING...HEADER PAGE FOR SMITH

will appear.

In the second example, "SPOOLED OUTPUT" is to be printed. "Spooled output" is text that actually resides within a request file. That is, instead of containing the name of a file to be printed, the request file actually contains the text to be printed. Various application programs, such as The Messenger Electronic Mail program, queue text to be printed by including it in print request files. (The subject of spooled output is not dealt with further in this manual).

NOTE: When multiple print servers are present, a server will occasionally display one of the following messages:

CAN'T MOUNT VOLUME
31, IN USE

WAITING FOR QUEUE LOCK

These messages are displayed when two print servers attempt to access /MAIN/SYSTEM/QUEUE files simultaneously, or when a user is creating a new request just as a print server is reading the /MAIN/SYSTEM/QUEUE/NEW request files. Such "errors" reflect a temporary situation and may be disregarded.

2.3.1 Printing the Header Page

A header page is printed for each job. The format of the header page is taken from one of the header textfiles located on the server boot volume (discussed in Section 2.3.2). If different printers are to print different headers, textfiles for each different header must be present on the boot volume.

The server program will print a user logo on the header page if configured to do so. This logo consists of the "user" value set in the user's Defaults.Text, or the user's station number (in hexadecimal). The formatting information that governs the shape of this logo is placed in the header file(s) and is implemented by BLOCK.CHARSET on the server's boot volume. User logos and BLOCK.CHARSET are discussed in detail in Section 4.3.4.

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2.3.2 Printing the Body of the File

After the header page for the job has been printed, the server program tracks the progress of the job by displaying the page and line currently being printed:

```
PRINTING...      PAGE    3,      LINE    4
```

If any key is pressed on the server's keyboard while the job is being printed, the line of options

```
C(ONTINUE)  R(ESTART)  K(ILL)  D(EFER)
```

will appear. The printer will stop and wait for "C", "R", "K", or "D" to be entered.

Pressing "C" (or <Return>) will cause the job to continue printing.

Pressing "R" will cause the print server to immediately restart the job, printing it from the beginning.

Pressing "K" will stop printing the job, leave it in the queue, and recheck the queue. The oldest/highest priority job in the queue (which may be the job just deferred) will then be printed.

If a console password has been set (Section 4.1) the server program will prompt for it before displaying this line of options:

```
ENTER PASSWORD?
```

If an incorrect password is provided, the program will display

```
ILLEGAL PASSWORD
```

and return to the job it was printing.

Queued requests that specify parameters other than those currently set in Servercmd.Text and Printcmd.Text are skipped:

12:19 PRINT: CENTRAL REQUEST 411:

NOTE: NEEDS FISCAL FORMS STANDARD

Here, a request is waiting because it specifies that the printer named "FISCAL" be used, and no such printer is currently on line (or currently named "FISCAL").

The Server Command Menu described in 2.3.3 below, can be used to select the "M" or "CP" options. These functions allow the system manager to kill waiting requests that can't be printed because they were initiated in error, or to reconfigure the printer parameters when a job can't be done because the current configuration doesn't provide the needed parameters.

2.3.3 The SERVER Menu: Commands Available in the SERVER Program

Pressing the space bar while the server program is waiting for requests or searching the request queues causes a menu to be displayed:

PRINT SERVER COMMANDS ARE:

F = FS COMMAND
M = QUEUE MAINTENANCE
CS = CONFIGURE SERVER
CP = CONFIGURE PRINTER
I = SERVER INFO
CH = CHECK QUEUES

SYSTEM OPERATION

Q = QUIT

COMMAND?

Again, if a password has been set for the console, the server program will prompt for it before displaying this menu, and return to waiting mode if the correct password is not provided.

Pressing <Return> when the menu is displayed causes the server program to resume its wait for requests. Typing one of the command options in the menu causes an associated program to be executed. These commands are discussed in detail in Chapter 5 of this manual. Commands to display print queue and print request status and kill waiting requests are also available to users of some environments. See appendices in the Printer Server User's Manual for details.

Chapter 3

Installing the Print Server Software

3.0 Introduction

Every printer shared by the network users must be controlled by a print server station; one server can control multiple printers. Print servers print only one job at a time. Multiple print servers are required to print multiple files simultaneously.

Print server stations can be used to control as many printers as they have slots available for printer controller cards, and can also function as network user stations when not required for print server duties.

Print servers can access multiple file servers on one network, and can be connected to more than one network at a time via network interface cards in different slots. The total of printers and networks may not exceed 7.

3.1 Print System Installation

Installation of the Print Server Subsystem consists of several steps covered in 3.1.1 through 3.1.3 below. Be sure to perform each of these steps and to refer to the appropriate appendix for your environment(s) when told to do so. Installation of software which will run at the print server station (SERVER programs) must take place on an Apple // or IBM PC computer running Pascal. Installation of user software must take place in the appropriate user environment.

INSTALL

If you ordered your software after ordering your system, it has been distributed on a tape cartridge. Before following the installation instructions, you must restore the software on tape to the hard disk. To do this,

- a. from the File Server, type QUIT
- b. from the utilities menu, select b) partial tape dump/restore
- c. from the option b menu, select L)ist to determine the specific pathnames on your tape
- d. now select R)estore. The program prompts you for pathnames you wish to restore. Enter those pathnames you found in step c).

3.1.1 Transferring Server Files to Print Server Boot Volume

Note that the following instructions are designed to handle two situations:

- the initial installation of your print server software
- an update to previously installed print server software

Unless an instruction explicitly refers to one or the other of these situations, it applies to both:

Boot into an Apple // Pascal volume.

When you turn on your Apple // and it prompts for "volume to boot", enter the name of a Pascal virtual volume. You can enter:

/MAIN/LIB/APPLE2/UCSD/PASCAL

INSTALL

This is the Pascal Library that is a part of the print server package. It is required for print server station operation and can be booted from during this installation procedure.

Type the following:

X (for execute)

LIB:NET

Now type the following after the : prompt:

LIST /MAIN/PRODUCTS/PS

Select the most recent version number from this listing of subdirectories and replace X.X with that directory name in the following instructions. This version number should correspond exactly to the version number on the packing list document that you received with your software.

Enter the following MOUNT command on one screen line and the SET DRIVE command on another line:

MOUNT /MAIN/PRODUCTS/PS/X.X/A2SERVER/SERVER,D6

SET DRIVE 6 VIRTUAL

If you are installing a software update, first rename the existing print server volume:

RENAME /MAIN/SYSTEM/PRINTER,OLDPRINTER

(Note that after you finish installing the updated software you will need to reconfigure the STARTCMD, PRINTCMD and SERVERCMD text files on the new print server boot volume.)

Next you will be creating a boot volume for your

INSTALL

print server. Our recommended (not required)
name for this volume is:

/MAIN/SYSTEM/PRINTER

Type the following:

CREATE /MAIN/SYSTEM/PRINTER,T=P,SZ=600B,D3,RW

SET DRIVE 3 VIRTUAL

Next you need to use the Pascal Filer to Zero
the directory and specify the size and name of
the volume for Pascal.

To do this type the following:

Q (to exit the NET.CODE and return to the main
Pascal command line)

F (to invoke the Pascal Filer)

Z (to invoke the Zero function)

The prompt will be:

"ZERO DIR OF WHAT VOL ?"

Respond with:

#3:

The prompt will be:

"DUPLICATE DIR?"

Respond with:

N

The prompt will be:

OF BLOCKS ON THE DISK?

Respond with:

600

The prompt will be:

NEW VOL NAME?

Respond by typing PS

The prompt will be:

CORRECT?

Respond with:

Y

The prompt will be:

Volume name: Zeroed

Next you need to use the Pascal Filer to Transfer
all of the contents of

/MAIN/PRODUCTS/PS/X.X/A2SERVER/SERVER

to

/MAIN/SYSTEM/PRINTER

To do this type the following:

T (to invoke the transfer utility)

The prompt will be:

"Transfer which file?"

INSTALL

Respond with:

#6:=

The prompt will be:

"To where?"

Respond with:

#3:\$

You have finished the first stage of print server software installation.

3.1.2 Copy Appropriate Driver Code to Print Server Boot Volume

You should also have another virtual volume with software needed by the print server to print the files for each subsystem for which you ordered print server support. For instance, if you purchased support for the Apple // CP/M environment, you should have a volume called:

/MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2/CPM

If you purchased support for more than one environment, you should have a driver volume for each environment.

In Section 3.1.1 we asked you to Create

/MAIN/SYSTEM/PRINTER

(Your exact name for this volume may differ from ours.) This is to be the boot volume for your print server. You have already copied the contents of

/MAIN/PRODUCTS/PS/X.X/A2SERVER/SERVER

into this volume.

In the appendices of this manual we explain how to copy the driver code from the

/MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2/CPM

(or other appropriate volume for your environment) volume into the print server boot volume. Be sure to turn to your appendices and accomplish this task for each environment that your Print Server Subsystem package supports. In the appendices we specify the appropriate volume name for your environment(s). The example above pertains to the Apple // CP/M environment only. The driver code is vital to printing from your particular environment(s).

3.1.3 Transferring the User Request Software to the Shared Library Volume

This step must be done from the appropriate user environment(s). This may mean that you will have to change computers if your installation uses a different type of computer for the print server station than for the user workstations, or if you have more than one type of computer which is being used as a user workstation.

Explicit instructions for each environment are in the appendices.



Chapter 4

Configuring the Print Server Software

4.0 Introduction

This chapter describes Print Server subsystem configuration which consists of:

1. Protecting appropriate print system textfiles and directories by setting file server passwords to control access and usage.
2. Making special file installation considerations when multiple networks and file servers are present.
3. Editing text files to establish print server subsystem parameters.
4. Establishing the name of the stations.
5. Setting printer parameters.

There are other configuring tasks which are specific to each operating system environment. See the appendices for instructions.

4.1 Access and Usage: Protecting
/MAIN/SYSTEM/QUEUE

When Server.Code is first executed, it will create the directories:

```
/MAIN/SYSTEM/QUEUE  
/MAIN/SYSTEM/QUEUE/NEW  
/MAIN/SYSTEM/QUEUE/REC
```

and the virtual volume

CONFIGURING

/MAIN/SYSTEM/QUEUE/MASTER

It is a good idea to protect the volume /MAIN/SYSTEM/QUEUE/MASTER and the print requests listed in the /MAIN/SYSTEM/QUEUE directories by setting file server passwords. The system default is no protection.

The PLAN 4000 optional file protection facilities are discussed in detail in the File Server User's Manual. Briefly, the system manager can prevent access to the /MAIN/SYSTEM/QUEUE files by setting passwords in the file pathnames and limiting public and group access rights to the files. This is accomplished by issuing file server PROTECT commands from the LIB:NET program (typed on one line):

```
CREATE /MAIN/SYSTEM/QUEUE, T=Y
PROTECT /MAIN/SYSTEM/QUEUE, PUBACC=R, GRPACC=R,
PRVACC=RWECD, PRVPW=XYZ
```

```
CREATE /MAIN/SYSTEM/QUEUE/NEW, T=Y
PROTECT /MAIN/SYSTEM/QUEUE/NEW, PUBACC=C, GRPACC=C,
PRVACC=RWECD, PRVPW=XYZ
```

```
CREATE /MAIN/SYSTEM/QUEUE/REC, T=Y
PROTECT /MAIN/SYSTEM/QUEUE/REC, PUBACC=, GRPACC=,
PRVACC=RWECD, PRVPW=XYZ
```

```
CREATE /MAIN/SYSTEM/QUEUE/MASTER, T=P, SIZE=200.B
PROTECT /MAIN/SYSTEM/QUEUE/MASTER, PUBACC=R,
GRPACC=R, PRVACC=RWECD, PRVPW=XYZ
```

Use passwords unique to your installation in place of the "XYZ" shown above.

These commands provide the following access, which must be present for the system to function:

1. Public and group CREATE access to the /MAIN/SYSTEM/QUEUE/NEW files; private CREATE/ERASE/READ/WRITE/DELETE access for the /MAIN/SYSTEM/QUEUE/NEW files.
2. No public or group access to the /MAIN/SYSTEM/QUEUE/REC files; private RWECD access.
3. Public and group READ access to the /MAIN/SYSTEM/QUEUE; private RWECD access. (The system will create a /MAIN/SYSTEM/QUEUE/MASTER volume of 200 Blocks, if no volume exists. If the system manager creates the volume, it can be made any convenient size: the volume keeps a record of active, waiting, and completed requests, about one request per block. The default /MAIN/SYSTEM/QUEUE/MASTER volume will keep a record of the 194 most recent print requests-waiting, active, or completed.)

Note: Passwords are set by Startcmd.Text each time that the Server volume is booted. See Section 2.1.2 for details on how to enter passwords into the Startcmd file.

4.2 File Installation When Multiple Network Segments/File Servers are Present

Use of the print server subsystem with multiple file servers and multiple network segments is straightforward. However, the system manager should give some thought to the matter, and only hands-on experience at the individual installation will show how the system files must be situated on network disks for greatest convenience.

CONFIGURING

A number of points can be made at the outset:

1. The print server software need reside on only one network.
2. The user software must be available on a shared library volume for every file server that is part of the print system.
3. A print server will print only one job at a time. For simultaneous output, multiple print servers must be present.

4.3 Setting System Parameters

Every printer to be shared on the network must be controlled by a print server station; one server can control multiple printers. Each printer is defined for the server program by:

1. The printer controller card slot
2. The printer name
3. The setup name
4. The header text file name

The file server(s) are defined for the server program by slot number (which slot in the print server station is the network interface card in).

These parameters are present in order to allow system users to attach and serve multiple networks, file servers, print servers, and printers, while still defining each uniquely. Further, multiple parameters allow a single printer to perform multiple printing tasks via the redefinition of its identifying parameters.

The system manager defines these system parameters by listing them in textfiles on the print server boot volume. One exception to this is the print server name; setting of this name is discribed in Section 4.4.

These textfiles are discussed in detail below. We provide the information that they should contain, how that information should be formatted, how the information is originally placed in the files, and how it can later be changed.

These textfiles can be edited using the Pascal editor, or changed from the server program using the "CP" and "CS" menu items (discussed in Chapter 5).

The textfiles to be edited, in order to configure the system are:

Servercmd.Text: Sets server parameters such as Server console password, file server slots, file server station addresses, and overnight hours.

Printcmd.Text: Sets printer parameters such as setup names, printer names, header file names, and forms width.

Block.Charset: Sets size and shape of user logo optionally printed on header pages. (Cannot be edited.)

4.3.1 Setting Print Server Parameters: Servercmd.text

The print server program uses the Servercmd.Text file on its boot volume to set a number of system parameters:

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1. The name of the print server program itself (usually SERVER).
2. The name of the driver codefile(s) that the print server program will call to actually print the queued request files.
3. The names of console commands available to the system manager in the print server program (used at the print server console when the print server program is running), the prompts for those commands, and the programs called by those commands.
4. The hours for "Overnight" print jobs.
5. Network interface card slot numbers and file server stations to be checked for print requests.
6. Print Server console password.

The format for Servercmd.Text is

- 1) ;Comment lines
- 2) PROGRAM <Print Server program name>
- 3) REQUEST <print> PROGRAM <program name>
- 4) COMMAND <name> PROGRAM <volume:filename>
PROMPT N=<name>
- 5) NIGHT <n1, n2>
- 6) FS SLOT=<n>, STATION=<\$nn>
- 7) PASSWORD <XYZ>

(Reference numbers to the left are not part of the file)

To explain the format:

1. ";" in column 1 indicates a comment line.

2. The line "PROGRAM <print server program name>" simply names the program that the print server is using:

PROGRAM SERVER

3. Print commands to be found in the user print request files ("REQUEST PRINT") must be related to the program that SERVER will call to service the command:

REQUEST PRINT PROGRAM DRVPCPM

4. The lines beginning "COMMAND" format the print server menu of console commands and define the programs that can be executed by the system manager from the console by selecting the appropriate item from the menu (see sample file below).

For example, typing "F" from the Print Server Menu (shown on page 5-2) causes the FS NET program to be loaded at the Print Server station, allowing the system manager to enter FS commands before returning to the server program. The Servercmd line would read:

COMMAND FS PROGRAM LIB:NET PROMPT F=FS COMMAND

"Programs" preceded by an ampersand, "&", reference routines internal to the print server program:

COMMAND INFO PROGRAM &INFO PROMPT I=SERVER INFO

The console commands, prompts, and referenced programs and routines are shown in the example textfile below, and programs are discussed in more detail in the following section.

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5. "NIGHT" defines the hours during which "Overnight" priority is in effect (on a 24 hour clock).
6. Lines beginning with "FS" define the print server slots containing file server interface cards, and the addresses of the network file servers on those networks that are to be checked for print requests. In the example below, the print server is connected to two networks via interface cards in slots 4 and 6. The server will check for print requests on the file server with hexadecimal address FE on the slot 6 network and the file servers with hexadecimal addresses FE and FD on the slot 4 network. Any number of file servers can be listed here.

Increase or decrease file servers to be checked by adding or subtracting "FS" lines using the Pascal editor (or the "CS" console command, discussed in Section 5.1.2).

Although file servers can and should have unique names, in addition to their addresses, file server names are set by creating a Profile record, not by the print server programs, and are not referenced in Servercmd.text.

7. A password can be set in Servercmd.Text that will limit access to the Print server command menu. The format is

PASSWORD XYZ

The print server command menu is displayed wherever the print server program is in "Waiting" mode and the spacebar is pressed. With a password set, the prompt

ENTER PASSWORD?

appears. If an incorrect password is entered, the message

ILLEGAL PASSWORD

is displayed and the program returns to "Waiting" mode.

The password must also be given in order to stop a printing job in progress, to display the line

C(ontinue), R(estart), K(ill), Q(uit)?

Servercmd.Text can be edited like any other Pascal text file. However, from within the print server program, changes to it are most easily accomplished using the CONFIGURE SERVER command from the print server menu (Section 5.1.1).

A sample Servercmd.Text:

```
; LAST MODIFIED: WED 07-Oct-1981 11:14:05
; THIS IS SERVERCMD.TEXT... 8/81
PROGRAM SERVER
```

The following will appear as single lines on your screen:

CONFIGURING

COMMAND FS PROGRAM LIB:NET PROMPT F=

FILE SERVER COMMAND

COMMAND CS PROGRAM SETSERVER PROMPT CS=

CONFIGURE SERVER

COMMAND CP PROGRAM SETPRINTER PROMPT CP=

CONFIGURE PRINTER

COMMAND MAINTAIN PROGRAM QMAINTAIN PROMPT M=

MAINTAIN QUEUES

COMMAND INFO PROGRAM &INFO PROMPT I=

SERVER INFO

COMMAND CHECK PROGRAM &CHECK PROMPT CH=

CHECK QUEUES

COMMAND QUIT PROGRAM &QUIT PROMPT Q=

QUIT

;*** Set console password if desired***
PASSWORD XYZ

NIGHT 3,6

FS SLOT=6, STATION=\$FE

FS SLOT=4, STATION=\$FE

FS SLOT=4, STATION=\$FD

4.3.2 Formatting Header Pages: the Header Files

Before printing any file on the specified printer and setup, SERVER will print a header

page using information found in the header file specified for the given printer in Servercmd.Text. Header files reside on the boot volume /MAIN/SYSTEM/PRINTER and are created, edited, and changed as needed by the system manager.

Any text found in a printer's header file will be printed as found. Text and designs constructed from text characters may be entered.

Any of the reference values listed in the table below can also be entered into the header file, which should be formatted to resemble the header page. Arrange the desired values in any order on the page, with any associated text. When the header page is printed, the print server program will find the referenced values in the queued print request.

Or, the system manager might create the company logo out of, for instance, asterisks, and enter the design into the header file, using the Pascal Editor. The design will be printed out at the start of each job on that printer that uses that header file. A sample file is shown below.

For example, typing

Copies: &COPIES

into the header textfile in line 1 will cause the header page to have

Copies: n

printed on its first line, where n is the number of copies specified for the job.

Non-printable ASCII characters must sometimes be

CONFIGURING

output to a printer. For example, these characters may be used as escape sequences. The "&HEX" keyword in the header file allows the use of such characters. The syntax is

&HEX=xxyyzz....

where each character pair represents an 8-bit hex number. For example,

&HEX=1B1A49

in a header file sends the ASCII sequence ESC/SUB/I (\$1B/\$1A/\$49) to the printer. Many daisywheel printers interpret such a sequence as a RESET command.

<u>Value</u>	<u>Meaning</u>
&DATE	Date and time
&QNUM	Queue number assigned by SERVER to the request
&USER	User identification, such as initials, set in user defaults file
&NAME	User's "name" such as full name, as set in user defaults file "name"
&STATION	User station number (\$hexadecimal)
&ID	"User" value as set in user defaults file (Pascal, SOS, and CP/M), or user station number. Can be used by BLOCK.CHARSET to print header logo (see next section)
&PATH	Network pathname of volume on which the file to be printed resides
&FILE	File(s) to be printed
&ERRMSG	Error message. Printed if job

	cannot be printed (e.g., "File Not Found")
&COPIES	Number of copies to be printed
&EJECT	Page length
&FS	File server for files to be printed (name if set; address otherwise)
&FSNO	File server station number
&SERVER	Printer server name, if set
&SERVNO	Printer server station number
&PRINTER	Printer name
&SETUP	Printer setup name
&PRIORITY	Job priority
&TITLE	Page title set in user or system defaults file, or from print request program
&HEX=XXXX...	Provides a mechanism for entering ASCII characters in hexadecimal format. (For example, if a printer required an <ESCAPE> 3 sequence to initialize the printer, this would be entered as: &HEX=1B33.)

Note: In addition to text, designs constructed from text characters, and referenced "&" values, the header page can contain an eight-line logo of the user value as set in the user's defaults file, or of the user station address. This is discussed in the following section.

A typical file header might look like:

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Print Request Number &QNUM

Station: &STATION

<LOGO constructed by

Name: &NAME BLOCK.CHARSET using &ID>

Date: &DATE

FS Pathname: &PATH

<LOGO DESIGN>

File Server: &FS(&FSNO)

Filename (s): &FILE

&FILE

\$FILE

&FILE

Print Server: &SERVER (&SERVNO)

Setup: &SETUP

Priority: &PRIORITY

Copies: &COPIES

Eject: &EJECT

&ERRMSG

4.3.3 Setting Printer Parameters: PRINTCMD.TEXT

Printcmd.Text is located on the print server's boot volume and is used by the server program to set the following printer parameters:

1. Printer names (one word each)
2. Printer controller card slot number in server station
3. Setup names
4. Printer width (# of columns)
5. Header textfile names (header textfiles)

contain the formats of the headers to be printed by a printer before each job).

6. BLOCK.CHARSET reference (CHARSET prints a user logo on the header page if the header file references it).

Printcmd.Text has the following form:

1. ; Comment line
2. CHARSET *:BLOCK.CHARSET
3. PRINTER <name> SETUP=<name> SLOT=<n>
WIDTH=<nnn> HEADER <name>

Reference numbers to the left are not part of the file.

1. ";" signifies a comment line.
2. CHARSET is the file on the boot volume that contains the format information for the user logo printed on the header pages (Section 4.3.4).
3. The PRINTER line sets printer name, printer control card slot number, forms name, and the name of the textfile containing the specific header format for each printer that the server station serves:
 - a. The word "PRINTER" is followed by the name chosen for the printer. In the example below, two printers are served and are named MARKETING and LINEPRINTER. Printer names must be one word.
 - b. "SLOT=" is followed by the slot number in which the printer controller card is installed in the server station. The printer controlled by the card in this slot is given the name preceding it on the same text line.

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- c. The word "SETUP=" is followed by the name chosen for the type of paper, the length and width of the printable surface, ribbon etc. currently installed in a printer. In the example below, one printer has the form installed that the system manager has defined as STANDARD for the system. The other printer has CHECKS installed.
5. Printer "WIDTH=" is a number between 0 and 200 that indicates how many columns are in a print line for this printer. If a text line greater than the printer width value is to be printed, the line will be truncated at the width set and the remainder of the line will be printed on the following line.

WIDTH=0 disables this feature, and textlines are printed as found, regardless of width. Text processing programs include a variety of control characters in textlines (to right justify the text, for example, and to backspace for underlining). All such characters are counted when line width is calculated by the print server program. For this reason, some textlines in processed textfiles may be truncated by the print server program incorrectly unless WIDTH=0 is used.

If a particular printer at your installation is completely dedicated to printing word processed output, set the printer WIDTH parameter for the printer to 0, so that no length checking will be done on the text lines being printed.

If a printer is never used for word processed output, a reasonable number should be selected for the printer WIDTH parameter (80

or 132 is usually adequate).

If one printer will be used to print both types of output, configure 2 printer entries so that both involve the same printer name and slot but have different values for SETUP and printer WIDTH. For example,

```
PRINTER DAISY SETUP=STD SLOT=2 WIDTH=80 HEADER STD
```

and

```
PRINTER DAISY SETUP=WP SLOT=2 WIDTH=0 HEADER WP
```

Both configurations can be attached simultaneously.

Default printer WIDTH value is 0.

6. The word "HEADER" is followed by the name given to the textfile on the boot volume that contains the format for the first ("header") page printed out by the printer when it begins a new job.

A sample Printcmd.Text:

```
; THIS IS PRINTCMD.TEXT... 12/81
CHARSET *:BLOCK.CHARSET
```

```
PRINTER R&D SETUP=STANDARD SLOT=1
HEADER R&DHDR PRINTER LINEPRINTER
SETUP=CHECKS SLOT=2 HEADER LINEHDR
```

Here, the "R&D" printer's controller card is installed in slot 1 of the Print Server station. The "LINEPRINTER" controller card is installed in slot 2.

The "R&D" printer is using the setup defined by the system manager as STANDARD. If the setup is

changed, the system manager will change SETUP from "STANDARD" to some other name. The LINEPRINTER currently is configured in the setup labelled "CHECKS" by the system manager.

Each printer, before printing a job, prints out a header page. The formats for these headers are contained, respectively, in the textfiles named "R&DHDR" and "LINEHDR".

Printcmd.Text can be edited like any other Pascal text file. However, from within the print server program, changes to Printcmd.Text are most easily accomplished using the CONFIGURE PRINTER command from the server menu (see Section 5.1.1).

4.3.4 Formatting the User Logo: BLOCK.CHARSET

To include a user logo on the header page of a print job, the following 8 lines must be placed in the header textfile (Section 4.3.2) as shown, at the location on the header page where the logo is to begin:

```
&BLOCK1=&ID  
&BLOCK2=&ID  
&BLOCK3=&ID  
&BLOCK4=&ID  
&BLOCK5=&ID  
&BLOCK6=&ID  
&BLOCK7=&ID  
&BLOCK8=&ID
```

&ID is the "User" value found in the users defaults text. If, for example, User = BOB in a user's defaults text, and the eight lines above are placed in the header text file, at the top,

BBBB	000	BBBB
B B	O O	B B
B B	O O	B B
BBB	O O	BBB
B B	O O	B B
B B	O O	B B
BBBB	000	BBBB

will be printed out the top of the header page eight lines high.

In some environments the station number at which the job was queued is printed out, instead of "name".

A long user ID will wrap around the header page if the lines are not typed far enough to the left of the page.

BLOCK.CHARSET, a file found on the SERVER boot volume, is provided as part of the print system and is used in printing the logos. The file can not be edited.

4.4 Naming the Print Servers: SETPROFILE

When making print requests at their stations, users have the option of specifying which print server will service the requests. This print server may be specified by its station number or by its name.

You can specify a name for any station on the network by creating an appropriate Profile record.

Note: See the File Server Apple // Pascal User's Guide for detailed information.

Chapter 5

Maintaining the Print Server Subsystem

5.0 Introduction

The print server subsystem maintenance consists of:

1. Reconfiguring the system to print waiting requests
2. Killing incorrect requests
3. Attaching and detaching printers and file servers that have been physically configured into the system.

Once all system textfiles and codefiles are installed and tailored to fit your individual network(s), the print server subsystem will accept print requests from users via the user print request programs, and execute them via the server programs running on print server workstations.

There are various maintenance tasks that the system manager should be prepared to do. Occasionally, unwanted print requests should be cleared from the queue. Printers, print server stations or network segments might be added or removed from your configuration. Or, more setup configurations might be needed to accommodate the needs of various users in your organization.

A menu of commands is available to the system manager at the console stations, to facilitate system reconfiguration and to allow the system manager to monitor ongoing operation of the

MAINTAINING

system.

The command menu is:

PRINT SERVER COMMANDS ARE:

F = FS COMMAND
M = QUEUE MAINTENANCE
CS = CONFIGURE SERVER
CP = CONFIGURE PRINTER
I = SERVER INFO
CH = CHECK QUEUES
Q = QUIT
COMMAND?

To display the command menu, press the space bar when the server program is in the "Waiting" mode. If a console password has been set, the program will prompt for it. If the password is entered incorrectly, the program will return to its "Waiting" mode.

Note: Using these commands halts all other action by the print server.

5.1 Reconfiguring the System Parameters: the SET Codes

In the preceding chapter, we explained how to configure your print server subsystem by setting parameters and entering information into Pascal text files located in file server volumes. Some of these parameters can only be changed by editing the relevant textfiles, using the Pascal Editor (e.g., passwords in the server boot volume startcmd text, "Help" prompts screen text, and job header pages).

However, any parameter in Servercmd.Text can be changed from within the server program using the

"CS" (CONFIGURE SERVER) and "CP" (CONFIGURE PRINTER) commands from the server menu.

<u>To change or add</u>	<u>Use</u>	<u>Section</u>
Printer Name	CP	5.1.1
Controller Slot (Printer)	CP	
Setup Name	CP	
Overnight Hours	CS	5.1.2
File Server Address	CS	
Interface Slot (File Server)	CS	
Console Password	CS	

5.1.1 Reconfiguring the Printer Parameters

Some forms used in your printer may require a different printer setup from the standard forms. Character spacing, lines per inch, forms length, ribbon and forms width may be different for special forms. The print server uses the name SETUP to mean a combination of setup parameters required to use a particular form.

For example, suppose that a user wishes to print a series of checks on the printer named ACCOUNTING. The ACCOUNTING printer's setup name has been set to "STANDARD" by the Servercmd textfile, and the standard setup uses something other than checks. The user will queue a print request, specifying "CHECK" setup (or any other name chosen by the system manager to signify the desired setup). Since the "STANDARD" setup was not specified the request will be treated differently.

The server will skip this request, leaving it in the print queue until the user or system manager uses the "CP" command to change the ACCOUNTING printer's setup name from STANDARD to CHECK.

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This should be done after the actual setup change has been completed and the printer has been physically configured to print checks. While the "CP" command is being used, the print server will not attempt to print any jobs. If you need to change the SETUP be sure that the printer has not selected a job which is to be done in the current setup. Then type "CP" to configure the printer. Then change the printer paper and ribbon if necessary. Then change the "CP" screen SETUP so that requests for the new setup can be printed.

With the request queued, and the server program checking the queue, the system manager presses the space bar and the server menu appears. Typing in "CP" causes SETPRINTER.CODE to be loaded from the server boot volume. SETPRINTER displays the printer parameters that can be changed. For example,

```
CONFIGURE PRINTER    VERSION ____

--->  PRINTER NAME?  ACCOUNTING
      SLOT NUMBER:   1
      PRINTER SETUP: STANDARD
      PRINTER WIDTH: 132
      ATTACHED (YES/NO): YES

      PRINTER NAME:  DAISYWHEEL
      SLOT NUMBER:   2
      PRINTER SETUP: STANDARD
      PRINTER WIDTH: 80
      ATTACHED (YES/NO): YES

      PRINTER NAME:
      SLOT NUMBER:
      PRINTER SETUP:
      PRINTER WIDTH: 80
      ATTACHED (YES/NO): NO
```

PRINT A TEST FILE (YES/NO): NO
[TYPE <ESC> WHEN DONE.]

The values displayed by the SETPRINTER program are those specified in the boot volume's Printcmd.Text. In this example, two printers are connected to the server being used. If more than 3 printers are present, printer parameters for the additional printers must be changed in Printcmd.Text directly, using the Pascal Editor.

To change a parameter in the display move the cursor to the line to be changed. In this example, the Setup value for these ACCOUNTING printers is to be changed to "CHECKS". When CHECKS is entered, SETPRINTER changes that Setup value in Printcmd.Text to CHECKS. In the event that more than one printer is named ACCOUNTING, the correct printer is selected because the slot in the print server that contains its controller card is specified.

Upon exiting Setprinter.Code (with Printcmd.Text reconfigured), the server program will automatically recheck the "waiting" queue files and will discover the request for printing with the "CHECKS" setup.

When the check printing job has been completed, the printer can be reconfigured using the CP command, to return the Setup name to STANDARD. Since CP changes the Printcmd text file, any changes made will remain in effect until CP is used again (or until the Printcmd text is edited from the Pascal command line).

Note that if the actual printer setup is changed at the same time that the "CP" command is used, no jobs will be printed using an incorrect setup. Suppose, however, that the printer setup

MAINTAINING

is changed (special forms are inserted, for example) some time before "SETUP" is changed using "CP"? Perhaps it is not convenient for the system manager to be present when the checks are installed by a user from the Accounting Department, but the print request for "CHECKS" has already been queued. Then requests for printing on "STANDARD" paper will be printed using the newly installed check setup.

The system manager cannot simply change the SETUP value to CHECKS, or the queued accounting request will be printed out using the Standard setup. Since the print server has another printer attached, however, we may not want to simply turn it off for a while.

In this event, the system manager must make use of the "ATTACHED" option seen in the sample display above. SETUP can be changed to CHECKS, and the Printer "detached" by answer "N" to the prompt "ATTACHED (YES/NO)". Later, after the checks have been installed, the system manager can "reattach" the printer.

To print a test file, enter its Pascal volume and filename. The volume must be currently mounted at the server station. To mount a volume, use the "F" command discussed in Section 5.2 below. (You may wish to keep a test file on your server boot volume.)

A test file might be convenient, for example, if you are changing the SETUP parameter to CHECKS and wish to be sure the checks have been installed with the correct alignment and that the printer is functional.

The "CP" commands allows only the first three printers listed in Printcmd.Text to be reconfigured. To add or subtract other printers,

or to change their parameters, edit the Printcmd.Text using the Pascal Editor. (Use the "Q" command, below, to reach the Pascal command line.)

5.1.2 Reconfiguring the Server

In a second example, Station \$28 (named MARKETING) serves the printer ACCOUNTING through slot 1, and DAISYWHEEL through slot 2. The only file server station (on any network) set for the MARKETING print server is \$FE, CENTRAL.

A user wishes to print out files that reside on a hard disk served by the SECONDARY file server \$FD, on the Station \$28 ACCOUNTING printer, changing the Setup parameter from STANDARD to CHECKS.

Both "CS" and "CP" commands must be used: "CP" as explained in the preceding section, to change Setup to "CHECKS", and "CS" to add the file server \$FD to the system. Typing "CS" causes server to display:

MAINTAINING

CONFIGURE SERVER VERSION ____

```
      CONSOLE PASSWORD:  GOLD
-->  NIGHT  STARTING HOUR:  3
      ENDING HOUR:      6

      FILE SERVER:  CENTRAL
      SLOT NUMBER:  6
      STATION:  $FE
      ATTACHED (YES/NO):  YES

      FILE SERVER:
      SLOT NUMBER:
      STATION:
      ATTACHED (YES/NO):  NO

      FILE SERVER:
      SLOT NUMBER:
      STATION:
      ATTACHED (YES/NO):  NO

      [TYPE <ESC> WHEN DONE.]
```

Note that the console password "GOLD" has been set in Servercmd.Text. "GOLD" must be typed in, in response to the prompt "Enter Password?", before the "CS" command can be typed in, and before the "Configure Server" page will be displayed.

In this example, only one file server, \$FE, is listed in Servercmd.Text. To add \$FD, the system manager must move the cursor to one group of blank FILE SERVER, STATION, and SLOT lines and type in the appropriate file server station number (in decimal, or in hex with a "\$"), and the number of the print-server slot holding the network interface card for that station, answering "ATTACHED" with "YES".

Note: Setserver.Code cannot change file server

names. For this reason, the cursor jumps over the "File Server" name in the CONFIGURE SERVER menu. The name will be filled in later by the server program, when you exit the "CS" program and the system is reconfigured in response to your input.

File Servers, like printers, can be temporarily "detached" by changing the ATTACHED value for the server from "YES" to "NO". This will be useful, for instance, when the system manager knows that a file server will be unavailable.

As SETPRINTER.CODE changes Printcmd.Text, so the SETSERVER.CODE program changes Servercmd.Text, to reflect the changes entered at the console. After Servercmd.Text has been reconfigured, the server program will automatically recheck the "skipped" files in the request queue.

A file server for another network can also be added using "CS". This is shown below for illustrative purposes. Its address may be identical to that of a server or user station on the first network: ambiguity is avoided by the use of slot numbers. However, file server names, set by the File Server Installation and Operation Manual, must be unique.

MAINTAINING

CONFIGURE SERVER VERSION ____

CONSOLE PASSWORD: GOLD
--> NIGHT STARTING HOUR: 3
 ENDING HOUR: 6

FILE SERVER: CENTRAL
SLOT NUMBER: 6
STATION: \$FE
ATTACHED (YES/NO): YES

FILE SERVER: SECONDARY
SLOT NUMBER: 6
STATION: \$FD
ATTACHED (YES/NO): Yes

FILE SERVER: OTHERNET
SLOT NUMBER: 4
STATION: \$FE
ATTACHED (YES/NO): Yes

[TYPE <ESC> WHEN DONE.]

The "CS" command allows only the first three file servers listed in Servercmd.Text to be reconfigured. To add or subtract other file servers, or to change their parameters, edit the Servercmd.Text "FS" lines using the Pascal Editor. (Use the "M" command, below, to reach the Pascal command line.)

5.2 Other Print Server Console Commands

Note: Remember that all action stops on the printers served by the print server when these commands (and the "CP" and "CS" commands) are being used at the console.

F = FS COMMAND

Typing "F" from the Server menu causes the Server program to suspend printing activities and load and run the FS NET program. When the NET greeting and prompt appear, enter FS commands as needed. Typing "Q" quits the program and returns control to the Server program, which will return to its wait-and-search mode for new print requests.

Warning: Do not unlock locks or use the SET DIR command while in the FS NET program.

M = QUEUE MAINTENANCE

Typing "M" from the server now causes the server program to chain to QMAINTAIN. This program allows you to display and kill entries. This becomes necessary when users issue print request that can not be processed because the file names are incorrectly specified. These incorrectly specified requests must be deleted from the request queue.

I = SERVER INFO

Typing "I" from the Server Menu causes the following information to be displayed:

Time
 Print Server Name
 "Overnight" priority hours
 For currently attached file server:
 Names, Status, Slot Numbers, and Addresses
 Internal reference information.

For example:

MAINTAINING

WED 07-OCT-1981 11:07:41
THIS SERVER'S NAME IS FISCAL
NIGHT IS 3 TO 6
REQUEST PROGRAM
PRINT DRVPPAS

FILE SERVER	STATUS	CHANNEL
MARKETING	ACTIVE	SLOT=6,STN=\$FE
TECHNICAL	ACTIVE	SLOT=4,STN=\$FE

(The last 2 lines in this example contain reference information for the server program's internal use, telling the print server program that "Print" commands found in the Request files should be implemented using the DRVPCPM.CODE.

Having displayed this information, the print server program will return to its wait-and-search mode.

CH = CHECK QUEUES

Typing "CH" from the Server menu causes the Server program to display the file server queues currently online and the requests currently queued in them that have been skipped:

MARKETING QUEUES WILL BE CHECKED
TECHNICAL QUEUES WILL BE CHECKED

11:05 MARKETING PRINT REQ 37
NOTE: NEEDS MARKETING SETUP GREEN

11:05 TECHNICAL PRINT REQ 67
NOTE: NEEDS TECHNICAL SETUP BROWN

Here, the print server subsystem is configured to check two file servers for print requests.

The file servers are named "MARKETING" and "TECHNICAL". Each has a print request waiting in queue with print system parameters that do not match those currently set; hence, the requests are waiting. No other requests are presently queued and the server is waiting.

Section 5.3 below discusses how to obtain more information on waiting print requests and how to insure that they are serviced or removed from the queue.

Having displayed this information, the print server program returns to its wait-and-search mode.

Q = QUIT

Typing "Q" from the Print Server Menu exits the program and returns to the Pascal command line.

5.3 Monitoring the QUEUE Files

If the system parameters specified by users in their print requests do not match the parameters set in the print server text files, the print requests will not be printed and will wait in the print request queue. Parameters may not match, for example, because the user requires a different setup on a printer, or because the files to be printed are located on a file server not currently attached. Note for example, that some forms used in your printer may require a different printer setup from the standard forms. Character spacing, lines per inch, forms length, and ribbon may be different for special forms. The print server uses the name SETUP to mean a combination of setup parameters required to use a particular form.

MAINTAINING

The system manager is informed of the existence print server or QMAINTAIN programs. The print server program rechecks the Queue files, reporting any waiting requests

1. Whenever the Setprinter and Setserver files are reconfigured using the "CS" and "CP" commands
2. At the beginning of the "Overnight" period
3. When the "CH" command is issued from the server console

When waiting files are discovered, the system manager must use the QMAINTAIN programs to learn more about them: it will be necessary to learn why they are waiting.

If the print request parameters have been entered correctly in the user's request, but some reconfiguration of the system is required in order for the job to be printed, use the console "CP" and "CS" commands to make the necessary changes.

The QMAINTAIN program provides the option to create a request in the print queue to remove the original print request.

The system manager can eliminate files from the queue, at the print server console or at any user workstation, by X(ecuting) the NET.CODE program DELETE command.

:DELETE /MAIN/SYSTEM/QUEUE:XXX/REC:YYY/NUMBER

Notice that the last component of the pathname is the record number. By supplying the correct record number a request can be eliminated.

"XXX" and "YYY" in the above example, stand for passwords which protect these directories. These passwords must be correctly specified in the command line to allow deletion of the specific record item (where XXX and YYY are FS passwords set in the request files).

In the case of a system malfunction that causes incorrect information to be written into the MASTER volume,

/MAIN/SYSTEM/QUEUE/MASTER

can be deleted. The system will automatically rebuild it when next executed.

Appendix A

Installation, Configuration and Maintenance
of the Print Server Subsystem
in the Apple // DOS Environment

A.0 Introduction

This appendix contains instructions and delineates characteristics that are unique to installation, configuration, and maintenance of the Print Server Subsystem on the Apple // under DOS 3.3. It is organized as follows:

Section A.1 is meant to be read in conjunction with Chapter 3 of this manual and contains step-by-step instructions for moving the driver code to the print server boot volume, and for "load"ing the DOS print request program into the shared library volume called

/MAIN/LIB/APPLE2/DOS

Section A.2 is meant to be read in conjunction with Chapter 4 of this manual and contains details about configuration of the print server for the Apple // DOS environment.

Section A.3 is meant to be read in conjunction with Chapter 5 of this manual and contains details that are specific to maintenance of the print server when used under the Apple // DOS environment.

This appendix assumes that your hard disk has the following three virtual volumes:

/MAIN/LIB/APPLE2/DOS

APPLE // DOS

/MAIN/PRODUCTS/PS/X.X/USER/APPLE2/DOS
/MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2/DOS

Note that the version number will not be X.X but the version number of the latest release of this software. The packing list packaged with your network products indicates this version number.

If any of these volumes are not on your hard disk, contact your network service representative.

A.1 Installation of Print Server Software

There are two installations that must be made before the Apple // DOS environment is supported by the print server software.

A.1.1 Installation of Print Server Driver Code

The Apple // DOS print server driver code must be transferred to /MAIN/SYSTEM/PRINTER (or the name you gave to the print server boot volume.)

We assume that you are booting from an Apple // Pascal volume; /MAIN/LIB/APPLE2/UCSD/PASCAL can be booted if no other Pascal virtual volume exists.

Boot into an Apple // Pascal volume: in response to the "Volume to boot" prompt, type

//LIB/APPLE2/UCSD/PASCAL,R

When the Pascal Command line appears, type the following:

X LIB:NET (to cause NET.CODE to be executed)

MOUNT /MAIN/SYSTEM/PRINTER,D3,RW

LIST /MAIN/PRODUCTS/PS (select the directory name which is the most recent version number and substitute that name for X.X in the following instructions:)

MOUNT /MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2/DOS,D6 (type on one line)

SET DRIVE 3,6 VIRTUAL

Q (to quit NET.CODE)

F (to invoke the Pascal Filer)

T (to invoke the Pascal Transfer Utility)

The prompt will be:

TRANSFER WHICH FILE?

Your response will be:

#6:=

The prompt will be

To where?

APPLE // DOS

Your response will be:

#3:\$

You will be asked if you want the existing file with the same name to be deleted. Your response will be:

Y

You have completed the first part of the installation of print server support programs for the Apple // DOS environment.

A.1.2 Installing Print Server User Software in Shared Library

The next step in installation of print server software for the Apple // DOS environment consists of copying the contents of

/MAIN/PRODUCTS/PS/X.X/USER/APPLE2/DOS

to

/MAIN/LIB/APPLE2/DOS

Perform this part of the installation procedure in an Apple // DOS workstation environment.

To accomplish this do the following:

Boot the volume /MAIN/LIB/APPLE2/DOS

Type the following:

PR#N (N is the slot where the network interface card is installed.)

@MOUNT /MAIN/PRODUCTS/PS/X.X/USER/APPLE2/DOS,D2

Type the following:

```
LOAD PRINT,SN,d2
```

```
SAVE PRINT,SN,d1
```

N is the slot where the network interface card is installed.

A.2 Configuration of Print Server Software

The Print Server User's Manual explains that the request form contains options for printing. These options must be specified by the user when the print request is initiated. However, it is possible to specify defaults that will be read into the print request form each time it is displayed. In order to set defaults, the PRINT program is copied to a personal volume of each individual user. Certain lines of the BASIC source listing are then modified. This modified copy of the PRINT program remains on the user's volume. We assume that the users might want to set these defaults for themselves. Therefore, the directions for doing so are included in Appendix A of the Print Server User's Manual. The system manager can also set these defaults for users. Remember, however, that each workstation with personalized defaults must have a copy of PRINT, modified for that user and located on that user's personal volumes.

A.3 Maintenance of the Print Server Subsystem

When more print servers, printers, file servers, or printer setups are added to your installation, you may need to reconfigure the appropriate files. The instructions for file

APPLE // DOS

configuration in Chapter 4 of this manual can be used for this purpose.

Appendix B

Installation, Configuration and Maintenance
of the Print Server Subsystem
in the Apple // PASCAL Environment

B.0 Introduction

This appendix contains instructions and delineates characteristics that are unique to installation, configuration, and maintenance of the Print Server Subsystem on the Apple // under Pascal. It is organized as follows:

Section B.1 is meant to be read in conjunction with Chapter 3 of this manual and contains step-by-step instructions for moving driver code to the print server boot volume and for transferring the Apple // Pascal print request program to the shared library volume called /MAIN/LIB/APPLE2/UCSD/PASCAL.

Section B.2 is meant to be read in conjunction with Chapter 4 of this manual and contains details about configuration of the print server for the Apple // Pascal environment.

Section B.3 is meant to be read in conjunction with Chapter 5 of this manual and contains details that are specific to maintenance of the print server when used under the Apple // Pascal environment.

This appendix assumes that your hard disk has the following three volumes:

/MAIN/LIB/APPLE2/UCSD/PASCAL
/MAIN/PRODUCTS/PS/X.X/USER/APPLE2/UCSD/PASCAL
/MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2/UCSD/PASCAL

Note that the version number will not be X.X but the version number of the latest release of this software. The packing list packaged with your network products indicates this version number.

If any of these volumes are not on your hard disk contact your service representative.

B.1 Installation of Print Server Software

There are two installations which must be made before the Apple // Pascal Environment is supported by the print server software.

B.1.1 Installation of Print Server Driver Code

The Apple // Pascal print server driver code must be transferred to /MAIN/SYSTEM/PRINTER (or the name you gave to the print server boot volume.)

We assume that you are booting from an Apple // Pascal volume; /MAIN/LIB/APPLE2/UCSD/PASCAL can be booted if no other Pascal virtual volume exists.

When the Pascal Command line appears, type the following:

```
X LIB:NET (to execute NET.CODE)
```

```
MOUNT /MAIN/SYSTEM/PRINTER,D3,RW
```

```
LIST /MAIN/PRODUCTS/PS (select the directory  
name which is the most recent version number  
and substitute that name for X.X in the  
following instructions:)
```

MOUNT /MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2
/UCSD/PASCAL,D6 (type on one line)

SET DRIVE 3,6 VIRTUAL

Q (to quit NET.CODE)

F (to invoke the Pascal Filer)

T (to invoke the Pascal Transfer Utility)

The prompt will be:

TRANSFER WHICH FILE?

Your response will be:

#6:=

The prompt will be

To where?

Your response will be:

#3:\$

You will be asked if you want the existing file
with the same name to be deleted. Your response
will be:

Y

You have completed the first part of the
installation of print server support programs
for the Apple // Pascal environment.

B.1.2 Installing Print Server User Software in
Shared Library

The next step in installation of print server software for the Apple // Pascal Environment consists of copying the contents of

/MAIN/PRODUCTS/PS/X.X/USER/APPLE2/UCSD/PASCAL

to

/MAIN/LIB/APPLE2/UCSD/PASCAL.

Perform this part of the installation procedure in an Apple // Pascal workstation environment.

To accomplish this phase of the installation, do the following:

Boot into a Pascal virtual volume. (If you have just finished the instructions in the previous section, there is no need to reboot your computer.

Execute LIB:NET

Type the following: (each on one line):

MOUNT /MAIN/LIB/APPLE2/UCSD/PASCAL,D5,RW

MOUNT /MAIN/PRODUCTS/PS/X.X/USER/APPLE2/UCSD
/PASCAL,D9

SET DRIVE 9 VIRTUAL

Q (to quit NET.CODE and return to the main
Pascal command line.)

Type "F" to select the Filer.

Type "T" to select the Pascal Transfer

utility.

The prompt will be:

Transfer what file?

Your response will be:

#9:=,#5:\$

Respond "Y" to any questions about removal of existing files having the same name as the files being transferred.

WARNING: Krunching of the shared library volume may have to occur in order to do this transfer. DO NOT ATTEMPT TO KRUNCH THE SHARED LIBRARY VOLUME UNLESS NO OTHER USERS ARE ON-LINE.

B.2 Configuration of Print Server Software

B.2.1 Editing the Requestcmd.Text File

The Apple // Pascal environment contains a user command menu which is displayed every time the request program is invoked. This menu has a text file associated with it that can be modified by the system manager. The text file is called Requestcmd.text. The format of Requestcmd.text is as follows:

```
; Comment line
WRITE textline (provides prompts)
ASK textline (requests prompt value)
IF prompt (executes program or displays
textfile according to prompt letter entered)
```

Specifically,


```
WRITE Server Commands . . . .  
WRITE P - PRINT server request  
WRITE S - Display STATUS of previous requests  
WRITE D - Display STATUS of print queue  
WRITE K - KILL a previous print request  
WRITE Q - Quit (exit this program)  
WRITE H - HELP (display tutorial)  
WRITE ? - HELP (display tutorial)
```

ASK Enter command letter

```
IF P LIB:PRINT  
IF K LIB:KILLENTRY  
IF S LIB:SHOWENTRY  
IF D LIB:SHOWQUEUE  
IF F LIB:NET  
IF Q &QUIT  
IF ? &HELP  
IF H &HELP
```

The menu formatted in the Requestcmd text file is written on the user's screen and the user is prompted to select a command letter. Typing P, K, S, D, or F, calls the PRINT, KILLENTRY, SHOWENTRY, SHOWQUEUE, or NET programs. Typing Q references the internal "Quit" command. Typing "H", "HELP" or "?" references the REQUESTHLP text file described below.

The system manager can use the Pascal Editor to modify the Requestcmd.text file, if different prompts are to be displayed. This structure allows the system manager to install prompts which cause chaining to other programs which reside on the shared library volume.

If, for example, file server commands are not to be available from the print program, simply remove the lines

```
WRITE F - FILE server request
```

and

IF F LIB:NET

from the Requestcmd and textfile, and the user menu displayed will be

Server Commands....

- P - PRINT server request
- S - Display STATUS of previous requests
- D - Display STATUS of print queue
- K - KILL a previous print request
- Q - Quit (exit this program)
- H - HELP (display tutorial)
- ? - HELP (display tutorial)

B.2.2 Editing the Requesthlp.text File

Users running the print request program in the Pascal environment have the option of typing "HELP", "HELP <subject>", "H", "H <subject>" or "?" or "? <subject>" in response to program prompts. If "HELP", "H", or "?" is entered with out a specified subject, a subject is prompted for:

Help on what subject?

The HELP message that is subsequently displayed resides in Requesthlp.text on the Pascal shared library volume. The program's HELP command, as distributed, has the format:

HELP <Subject>

Subjects available are: GENERAL, ALL, PRINT, STATUS, DISPLAY, KILL, FS.

If "<Return>" is typed for subject, the subject

"GENERAL" is used. If "HELP ALL" is typed, the help text for every subject is displayed.

Subjects in the Requesthlp.text file are identified by lines starting with "Subject:", with subject and prompt name following. The subject description ends at the next "SUBJECT:" or at the end of the file. For example, if the lines

SUBJECT: D;DISPLAY

are found in Requesthlp.Text, the text that follows will be printed on the user screen in response to the HELP DISPLAY command.

B.2.3 Editing the Defaults.text Files to Preset Option Defaults

As explained in the Print Server User's Manual in Appendix B, the Pascal environment PRINT program, when first executed, checks the user's boot volume for a Defaults.text file. This file is used to preset print request printing options.

Defaults may also be set in a Defaults.Text file on the shared library volume, although user's defaults will take precedence over them. It is expected that the user will probably not set defaults for all options, but will set defaults for options that are usually user dependent. Defaults that are expected to be acceptable for all of the users most of the time can be set by the system manager in the Defaults.Text file which resides on the shared library volume.

The distribution version of the print server programs and text files includes the following Defaults.Text file:

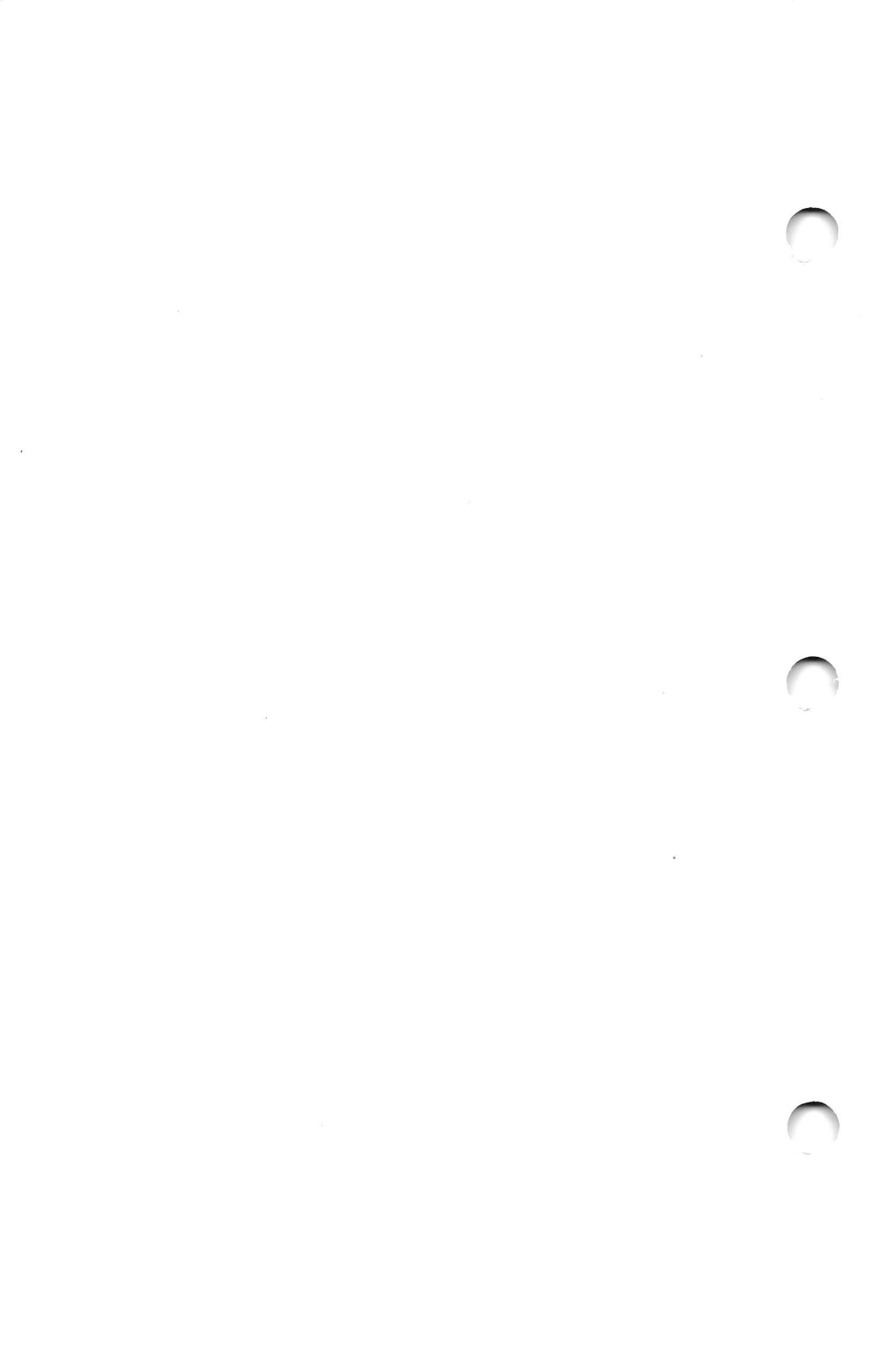
```
Print:  eject 62 printer printer1
Print:  title "Print Server"
Print:  copies 1 setup standard fs $fe
Print:  Priority standard
```

These text lines will set the default page length for print jobs to 62 lines. The default number of copies will be 1. Setup and priority requested will be "standard". The title "Print Server" will be printed at the top of each page, together with the time and date, page number, and file being printed.

If the system manager wishes to modify these preset defaults, the instructions for doing so are found in Appendix B of the Print Server User's Manual. The users Defaults.Text file requires the same format as does the system manager's.

B.3 Maintenance of the Print Server Subsystem

When more print servers, printers, file servers, or printer setups are added to your installation, you may need to reconfigure the appropriate files. The instructions for configuring in Chapter 4 of this manual can be used for this procedure.



Appendix C

Installation, Configuration and Maintenance
of the Print Server Subsystem
in the Apple // CP/M Environment

C.0 Introduction

This appendix contains instructions and delineates characteristics that are unique to installation, configuration, and maintenance of the print server software on the Apple // under CP/M. It is organized as follows:

Section C.1 is meant to be read in conjunction with Chapter 3 of this manual and contains step-by-step instructions for moving driver code to the print server boot volume and for "PIP"ing the CP/M Print program into the shared library volume called /MAIN/LIB/APPLE2/CPM.

Section C.2 is meant to be read in conjunction with Chapter 4 of this manual and contains details about configuration of the print server software for the Apple // CP/M environment.

Section C.3 is meant to be read in conjunction with Chapter 5 of this manual and contains details that are specific to maintenance of the print server when used under the Apple // CP/M environment.

This appendix assumes that your hard disk has the following three volumes:

/MAIN/LIB/APPLE2/CPM
/MAIN/PRODUCTS/PS/X.X/USER/APPLE2/CPM.
/MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2/CPM

Note that the version number will not be X.X but the version number of the latest release of this software. The packing list packaged with your products indicates this version number.

If any of these volumes are not on your hard disk contact your service representative.

C.1 Installation of Print Server Software

There are two installations which must be made before the Apple // CP/M environment is supported by the print server software.

C.1.1 Installation of Print Server Driver Code

The Apple // CP/M print server driver code must be transferred to /MAIN/SYSTEM/PRINTER (or the name you gave to the print server boot volume).

We assume that you are booting from an Apple // Pascal volume; /MAIN/LIB/APPLE2/USCD/PASCAL can be booted if no other Pascal virtual volume exists.

Boot into an Apple // Pascal volume. In response to the Volume to boot prompt, type

//LIB/APPLE2/USCD/PASCAL,R

When the Pascal Command line appears, type the following

X (to execute)

LIB:NET (to cause NET.CODE to be executed.)

MOUNT /MAIN/SYSTEM/PRINTER,D3,RW

LIST /MAIN/PRODUCTS/PS (select the directory name which is the most recent version number and substitute that directory name for X.X in the following instructions:)

MOUNT/MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE2/CPM,D6

SET DRIVE 3,6 VIRTUAL

Q (to quit NET.CODE)

F (to invoke the Pascal Filer)

T (to invoke the Pascal Transfer utility.)

The prompt will be:

Transfer Which File?

Your response will be:

#6:=

The prompt will be:

To where?

Your response will be:

#3:\$

You will be asked if you want the existing file with the same name to be deleted. Your response will be:

Y

You have completed the first part of the installation of print server support for the Apple // CP/M environment.

C.1.2 Installing Print Server User Software on Shared Library

The next step in installation of print server software for the Apple II CP/M environment consists of copying the contents of

/MAIN/PRODUCTS/PS/X.X/USER/APPLE2/CPM

to

/MAIN/LIB/APPLE2/CPM.

Perform this part of the installation procedure in an Apple // CP/M workstation environment.

To accomplish this do the following:

Make sure that the Z80 card is installed in your Apple // to allow successful operation of CP/M.

Boot the shared CP/M Library volume called /MAIN/LIB/APPLE2/CPM.

Type the following:

A>NET

LIST /MAIN/PRODUCTS/PS (Find the most recent version number of the volumes in this listing. Insert that version number in place of the X.X in the following instruction.

MOUNT /MAIN/PRODUCTS/PS/X.X/USER
/APPLE2/CPM,D2 (typed on one line)

Drive 2 will be known to CP/M as drive B:

Q (to return to the A> prompt.

A>PIP A:=B:*. *

C.2 Configuration of Print Server Software

C.2.1 Editing the Defaults.txt File to Preset Option Defaults

It is possible to set defaults for the print request form so that each time the form is displayed the user only needs to fill in option lines that are blank or that he or she wants to change for that particular request.

There are two text files from which the PRINT program draws its defaults. One is located on the user's logged-in volume and is called Defaults.Txt, and the other is located on the shared library volume and is called Defaults.Txt. When the PRINT program runs, it reads the defaults file on the user's volume first, then if there are any defaults that the user has not specified, the defaults file on the shared library volume (mounted on D8, H:) is read in. It may be that the user specifies all options in the personal defaults file. But, the user will probably only specify user dependent options such as number of copies, type of printer and type of setup.

In Appendix C of the Print Server User's Manual we explain how the user should edit the text file to include the user's defaults. The system manager is in charge of modifying the Defaults.txt file on the shared library volume.

The Defaults.Txt file now located in the shared

library volume is already configured at the time of distribution. It is as follows:

```
Print:  eject 62 printer printer1
Print:  title "Print Server"
Print:  copies 1 setup standard fs $fe
Print:  priority standard
```

These text lines will set the default page length for print jobs to 62 lines. Copies default will be 1. Setup and priority requested will be "standard". The default file server will be \$fe. The title "Print Server" will be printed at the top of each page, together with the time and date, page number, and file being printed.

If the system manager wishes to change or add to these preset defaults, the instructions for doing so are found in Appendix C of the Print Server User's Manual. The users Defaults.Txt file requires the same format as does the system manager's Defaults.Txt file.

C.3 Maintenance of the Print Server Subsystem

When more print servers, printers, file servers, or printer setups are added to your installation, you may need to reconfigure the appropriate files. The instructions for configuring in Chapter 4 of this manual can be used for this procedure.

Appendix D

Installation, Configuration and Maintenance of the Print Server Subsystem in the Apple /// SOS Environment

D.0 Introduction

This appendix contains instructions and delineates characteristics that are unique to installation, configuration, and maintenance of the Print Server subsystem on the Apple /// under SOS. It is organized as follows:

Section D.1 is meant to be read in conjunction with Chapter 3 of this manual and contains step-by-step instructions for moving driver code to the print server boot volume and for T)ransferring the SOS print request program to the shared library volume called /MAIN/LIB/APPLE3/SOS.

Section D.2 is meant to be read in conjunction with Chapter 4 of this manual and contains details about configuration of the print server software for the Apple /// SOS environment.

Section D.3 is meant to be read in conjunction with Chapter 5 of this manual and contains details that are specific to maintenance of the print server software when used under the Apple /// SOS environment.

This appendix assumes that your hard disk has the following three volumes:

/MAIN/LIB/APPLE3/SOS
/MAIN/PRODUCTS/PS/X.X/USER/APPLE3/SOS
/MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE3/SOS

Apple /// SOS

Note that the version number will not be X.X but the version number of the latest release of this software. The packing list packaged with your network products indicates this version number.

If any of these volumes are not on your hard disk contact your service representative.

D.1 Installation of Print Server Software

There are two installations which must be made before the Apple /// SOS environment is supported by the print server software.

D.1.1 Installation of Print Server Driver

The Apple /// SOS print server driver code must be transferred to /MAIN/SYSTEM/PRINTER (or the name you gave to the print server boot volume).

We assume that you are booting from an Apple // Pascal volume; /MAIN/LIB/APPLE2/UCSD/PASCAL can be booted if no other Pascal virtual volume exists.

In response to the Volume to boot prompt, type

//LIB/APPLE2/UCSD/PASCAL,R

Type the following:

X LIB:NET (to execute NET.CODE)

MOUNT /MAIN/SYSTEM/PRINTER,D3,RW

LIST /MAIN/PRODUCTS/PS (select the directory name which is the most recent version number and substitute it for X.X in the following instructions:)

MOUNT /MAIN/PRODUCTS/PS/X.X/A2SERVER/APPLE3
/SOS,D6 (type on one line)

SET DRIVE 3,6 VIRTUAL

Q (to quite NET.CODE)

F (to invoke the Pascal Filer)

T (to invoke the Pascal Transfer utility.)

The prompt will be:

Transfer Which File?

Your response will be:

#6:=

The prompt will be:

To where?

Your response will be:

#3:\$

You will be asked if you want the existing file
with the same name to be deleted. Your response
will be:

Y

You have completed the first part of the
installation of print server support for the
Apple /// SOS environment.

Apple /// SOS

D.1.2 Installing Print Server User Software in Shared Library

The next step in the installation of print server software for the Apple /// SOS environment consists of copying the contents of

/MAIN/PRODUCTS/PS/X.X/USER/APPLE3/SOS

to

/MAIN/LIB/APPLE3/SOS

Perform this part of the installation procedure in the Apple /// SOS workstation environment.

To accomplish this phase of the installation, do the following:

Boot into Pascal. (The SOS.DRIVER on this boot diskette must include the network driver. In addition, the Pascal diskette must contain both a Startcmd.Text file that causes the

/MAIN/LIB/APPLE3/SOS

volume to be mounted, and a SYSTEM.STARTUP file which processes the STARTCMD.TEXT file or, it must contain the program NET.CODE and the SYSTEM.LIBRARY file.) The following directions assume that this shared library is mounted on drive 3 (.N3). If that is not the case, it is up to you to make sure that other drive assignments made below do not conflict.

After booting type the following:

X (for execute)

NET (to execute NET.CODE)

If NET.CODE is not on your boot volume, you will need to specify /LIB/NET

Type the following:

MOUNT /MAIN/LIB/APPLE3/SOS,D3,RW

MOUNT /MAIN/PRODUCTS/PS/X.X/USER/APPLE3/SOS,D2

Q (to quit NET.CODE and return to the main Pascal command line)

F (to invoke the filer)

T (to invoke the Pascal Transfer Utility)

The prompt will be:

Transfer what file?

Your response will be:

.N2/=,.N3/\$

Respond with a "Y" to any questions about removal of existing files having the same name as the files being transferred.

D.2 Configuration of Print Server Software

D.2.1 Editing the Requestcmd.text File

The Apple /// SOS environment contains a user command menu which is displayed every time the request program is invoked. This menu as a text file associated with it, which can be modified by the system manager. The text file is called Requestcmd.text.

The format of requestcmd.text is as follows:

Apple /// SOS

```
; Comment line
WRITE textline (provides prompts)
ASK textline (requests prompt value)
IF prompt (executes program or displays
textfile according to prompt letter entered)
```

Specifically,

```
WRITE Server Commands . . . .
WRITE P - PRINT server request
WRITE F - FILE server request
WRITE S - Display STATUS of previous requests
WRITE D - Display STATUS of print queue
WRITE K - KILL a previous print request
WRITE Q - Quite (exit this program)
WRITE H - HELP (display tutorial)
WRITE ? - HELP (display tutorial)
```

ASK Enter command letter

```
IF P /LIB/PRINT
IF K /LIB/KILLENTRY
IF S /LIB/SHOWENTRY
IF D /LIB/SHOWQUEUE
IF F /LIB/NET
IF Q &QUIT
IF ? &HELP
IF H &HELP
```

The menu formatted in the Requestcmd text file is written on the user's screen and the user is prompted to select a command letter. Typing P, K, S, D, or F, calls the PRINT, KILLENTRY, SHOWENTRY, SHOWQUEUE, or NET programs. Typing Q references the internal "Quit" command. Typing "H", "HELP" or "?" references the REQUESTHLP text file described below.

The system manager can use the Pascal Editor to modify the Requestcmd.text file, if it is desirable that different prompts are displayed.

One possible option that this structure allows for is that the system manager can install prompts which cause chaining to other system programs which reside on the shared library volume.

If, for example, file server commands are not to be available from the print program, simply remove the lines

WRITE F - FILE server request

and

IF F LIB:NET

from the Request and textfile, the user menu displayed will be

Server Commands....

- P - PRINT server request
- S - Display STATUS of previous requests
- D - Display STATUS of print queue
- K - KILL a previous print request
- Q - Quit (exit this program)
- H - HELP (display tutorial)
- ? - HELP (display tutorial)

D.2.2 Editing the Requesthelp.text File

Users running the print request program in the Pascal environment have the option of typing "HELP", "HELP <subject>", "H", "H <subject>" or "?" or "? <subject>" in response to program prompts. If "HELP", "H", or "?" is entered with out a specified subject, a subject is prompted for:

Help on what subject?

The HELP message that is subsequently displayed resides in Requesthlp.text on the Pascal shared library volume. The program's HELP command, as distributed, has the format:

HELP <Subject>

Subjects available are: GENERAL, ALL, PRINT, STATUS, DISPLAY, KILL, FS.

If "<Return>" is typed for subject, the subject "GENERAL" is used. If "HELP ALL" is typed, the help text for every subject is displayed.

Subjects in the Requesthlp.text file are identified by lines starting with "Subject:", with subject and prompt name following. The subject description ends at the next "SUBJECT:" or at the end of the file. For example, if the lines

SUBJECT: D;DISPLAY

are found in Requesthlp.Text, the text that follows will be printed on the user screen in response to the HELP DISPLAY command.

D.2.3 Editing the Defaults.Text Files to Preset Option Defaults

As explained in the Print Server User's Manual in Appendix B, the Pascal environment PRINT program, when first executed, checks the user's boot volume for a Defaults.Text file. This file is used to preset printing options.

Defaults may also be set in a Defaults.Text file on the shared library volume, although user's defaults will take precedence over them. It is expected that the user will probably not set

defaults for all options, but will set defaults for options that are usually user dependant. Defaults that are expected to be acceptable for all of the users most of the time can be set by the system manager in the Defaults.Text file which resides on the shared library volume.

The distribution version of the Defaults.Text file is as follows:

```
Print:   eject 62 Printer Printer1
Print:   title "Print Server"
Print:   copies 1 setup standard fs $fe
Print:   Priority standard
```

These text lines will set the default page length for print jobs to 62 lines. Copy default will be 1. Setup and priority requested will be "Standard". "Print Server" will be printed at the top of each page, together with the time and date, page number, and file being printed.

If the system manager wishes to modify these preset defaults, the instructions for doing so are found in Appendix D of the Print Server User's Manual. The users Defaults.Text file requires the same format as does the system manager's Defaults.Text file.

D.3 Maintenance of the Print Server Subsystem

When more print servers, printers, file servers, or printer setups are added to your installation, you may need to reconfigure the appropriate files. The instructions for configuring in Chapter 4 of this manual can be used for this procedure.

Appendix E

Installation, Configuration and Maintenance of the Print Server Subsystem in the IBM PC UCSD p-System Environment

E.0 Introduction

This appendix contains instructions and delineates characteristics that are unique to installation, operation, and maintenance of the Print Server Subsystem in the IBM PC p-System environment. It is organized as follows:

Section E.1 is meant to be read in conjunction with Chapter 3 of this manual and contains step-by-step instructions for transferring print server files into the shared library volume called /MAIN/LIB/IBMP/UCSD/PASCAL.

Section E.2 is meant to be read in conjunction with Chapter 3 of this manual and contains details about configuration of the print server for the IBM PC Pascal environment.

Section E.3 is meant to be read in conjunction with Chapter 5 of this manual and contains details about maintenance of the print server when used under the IBM PC p-System environment.

This appendix assumes that your hard disk has the following virtual volumes:

/MAIN/LIB/IBMP/UCSD/PASCAL
/MAIN/PRODUCTS/PS/X.X/USER/IBMP/UCSD/PASCAL
/MAIN/PRODUCTS/PS/X.X/A2SERVER/IBMP/USCD/PASCAL

Note that the version number will not be X.X but the version number of the latest release of this

software. The packing list packaged with your network products indicates this version number.

If any of these volumes is not on your hard disk, contact your service representative.

E.1 Installation of Print Server Software

There are two installations which must be made before the IBM PC p-System environment is supported by the Print Server software.

E.1.1 Installation of Print Server Driver Code

The IBM PC p-System print server driver code must be transferred to /MAIN/SYSTEM/PRINTER (or the name you gave to the Print Server boot volume.)

To do this you should be using the station that will be your print server, in this case an Apple //. You will be changing from the Apple // Pascal to the IBM PC p-System environment when you perform phase two of the installation (described in E.1.2 below.) Be sure to change computers when we tell you to.

Boot into an Apple // Pascal volume: in response to the Volume to boot prompt, type

```
//LIB/APPLE2/UCSD/PASCAL,R
```

When the Pascal Command line appears, type the following:

```
X LIB:NET (to execute NET.CODE)
```

```
MOUNT /MAIN/SYSTEM/PRINTER,D12,RW
```

LIST /MAIN/PRODUCTS/PS (select the directory name that is the most recent version number and substitute that name for X.X in the instructions below:)

MOUNT /MAIN/PRODUCTS/PS/X.X/A2SERVER/IBMPC
/UCSD,D11 (one one line)

SET DRIVE 11,12 VIRT

Q (to quit NET.CODE)

F (to invoke the Pascal Filer)

T (to invoke the Pascal Transfer Utility)

The prompt will be:

TRANSFER WHICH FILE?

Your response will be:

#11:=

The prompt will be

To where?

Your response will be:

#12:\$

You will be asked if you want the existing file with the same name to be deleted. Your response will be:

Y

You have completed the first part of the installation of Print Server support programs for the IBM PC p-System environment.

E.1.2 Installing Print Server User Software on Shared Library

The next step in installation of Print Server software for the IBM PC p-System environment consists of copying the contents of

/MAIN/PRODUCTS/PS/X.X/USER/IBMP/UCSD/PASCAL

to

/MAIN/LIB/IBMP/UCSD/PASCAL

Perform this part of the installation procedure in an IBM PC p-System workstation environment.

To accomplish this phase of the installation, do the following:

Boot a p-System diskette configured for use with the network. (Instructions for creating such a diskette are in the PLAN 4000 File Server IBM PC p-System User's Guide.

Execute NET

Type the following:

MOUNT /MAIN/PRODUCTS/PS/X.X/USER/IBMP/UCSD
/PASCAL,D9 (Enter this command on one line)

SET DRIVE 9 VIRT

Mount the shared library volume for read/write access:

MOUNT //LIB/IBM PC/UCSD/PASCAL,D10,RW

SET DRIVE 10 VIRT

Q (to quit NET.CODE and return to the main Pascal command line.)

Type "F" to select the Filer.

Type "T" to select the Pascal Transfer utility.

The prompt will be:

Transfer what file?

Your response will be:

#9:=, #10:\$

Respond "Y" to any questions about removal of existing files having the same name as the files being transferred.

[WARNING: Krunching of the shared library volume may have to occur in order to do this transfer. DO NOT ATTEMPT TO KRUNCH THE SHARED LIBRARY UNLESS NO OTHER USERS ARE ON-LINE.]

E.2 Editing the Defaults.Text Files to Preset Option Defaults

As explained in the Print Server User's Manual in Appendix E, the Pascal environment PRINT program, when first executed, checks the user's current prefix volume for a Defaults.Text file. This file is used to preset printing options. Note that the prefix volume is not necessarily the same as the work volume, but can be set the same at startup using NESTAR.START.

Defaults may also be set in a Defaults.Text file on the shared library volume (LIB:), although

user's defaults will take precedence over them. It is expected that the user will probably not set defaults for all options, but will set defaults for options that are usually user dependent. Defaults that are expected to be acceptable for all of the users most of the time can be set by the system manager in the Defaults.text file which resides on the shared library volume.

The distribution version of the Defaults.Text file is as follows:

```
Print:   eject 62 printer printer1
Print:   title "Print Server"
Print:   copies 1 setup standard fs $fe
Print:   Priority standard
```

These text lines will set the default page length for print jobs to 62 lines. Copy default will be 1. Setup and priority requested will be "Standard". "Print Server" will be printed at the top of each page, together with the time and date, page number, and file being printed.

If the system manager wishes to change or add to these preset defaults, the instructions for doing so are found in Appendix E of the Print Server User's Manual. The users Defaults.Text file requires the same format as does the system manager's Defaults.Text file.

E.3 Print Server Subsystem Maintenance

When more print servers, printers, file servers, or printer setups are added to your installation, you may need to reconfigure the appropriate files. The instructions for configuring in Chapter 4 of this manual can be used for this procedure.

Appendix F

Installation, Configuration and Maintenance
of the Print Server Subsystem in
the IBM PC DOS EnvironmentF.0 Introduction

This appendix contains instructions and delineates characteristics that are unique to installation, operation, and maintenance of the Print Server Subsystem in the IBM PC DOS environment. It is organized as follows:

Section F.1 is meant to be read in conjunction with Chapter 3 of this manual and contains step-by-step instructions for PIPing print server files into the shared library volume called /MAIN/LIB/IBMP/DOS.

Section F.2 is meant to be read in conjunction with Chapter 3 of this manual and contains details about configuring defaults for the print server for the IBM PC DOS environment.

Section F.3 is meant to be read in conjunction with Chapter 5 of this manual and contains details of maintenance to the print server when used under the IBM PC DOS environment.

This appendix assumes that your hard disk has the following virtual volumes:

```
/MAIN/LIB/IBMP/DOS  
/MAIN/PRODUCTS/PS/X.X/USER/IBMP/DOS  
/MAIN/PRODUCTS/PS/X.X/A2SERVER/IBMP/DOS
```

Note that the version number will not be X.X but the version number of the latest release of this software. The packing list packaged with your

network products indicates this version number.

If any of these volumes is not on your hard disk, contact your service representative.

F.1 Installation of Print Server Software

There are two installations which must be made before the IBM PC DOS environment is supported by the Print Server software.

F.1.1 Installation of Print Server Driver Code

The IBM PC DOS print server driver code must be transferred to /MAIN/SYSTEM/PRINTER (or the name you gave to the Print Server boot volume.)

To do this you should be using the station which will be used as the print server. If the type of microcomputer you will be using as a print server is different than the type you will be using for workstations, you will be changing computers when you perform phase two of the installation (described in F.1.2 below.) Be sure to change computers when we tell you to.

Boot into an Apple // Pascal volume. In response to the Volume to boot prompt, type

```
//LIB/APPLE2/UCSD/PASCAL,R
```

Type the following:

```
X LIB:NET (to execute NET.CODE)
```

```
MOUNT /MAIN/SYSTEM/PRINTER,D12,RW
```

```
LIST /MAIN/PRODUCTS/PS (select the directory  
name that is the most recent version number
```

and substitute that name for X.X in the instructions below:)

MOUNT /MAIN/PRODUCTS/PS/X.X/A2SERVER/IBMPC/DOS,D11

SET DRIVE 11,12 VIRT

Q (to quit NET.CODE)

F (to invoke the Pascal Filer)

T (to invoke the Pascal Transfer Utility)

The prompt will be:

TRANSFER WHICH FILE?

Your response will be:

#11:=

The prompt will be

To where?

Your response will be:

#12:\$

You will be asked if you want the existing file with the same name to be deleted. Your response will be:

Y

You have completed the first part of the installation of Print Server support programs for the IBM PC p-System environment.

F.1.2 Installing Print Server User Software on
Shared Library

The next step in installation of Print Server software for the IBM PC DOS environment consists of copying the contents of

/MAIN/PRODUCTS/PS/X.X/USER/IBMPC/DOS

to

/MAIN/LIB/IBMPC/DOS

Perform this part of the installation procedure in an IBM PC DOS workstation environment.

To accomplish this phase of the installation, do the following:

Boot a DOS diskette configured for use with the network. (Instructions for creating such a diskette are in the PLAN 4000 File Server IBM PC DOS User's Guide.)

Execute NET

Type the following:

MOUNT /MAIN/PRODUCTS/PS/X.X/USER/IBMPC/DOS,D:

MOUNT //LIB/IBMPC/DOS,E:,RW

SET DRIVE D:, E:, VIRT

Q (to quit NET)

TYPE COPY D:*. * E:

F.2 Editing the Defaults.Text Files to Preset Option Defaults

As explained in the Print Server User's Manual in Appendix F, the PRINT program, when first executed, checks the user's default volume for a Defaults.Txt file. This file is used to preset printing options.

Defaults may also be set in a Defaults.Txt file on the shared library volume (L:), although user's defaults will take precedence over them. It is expected that the user will probably not set defaults for all options, but will set defaults for options that are usually user dependent. Defaults that are expected to be acceptable for all of the users most of the time can be set by the system manager in the Defaults.Txt file which resides on the shared library volume.

The distribution version of the Defaults.Txt file is as follows:

```
Print:  eject 62 printer printer1
Print:  title "Print Server"
Print:  copies 1 setup standard fs $fe
Print:  Priority standard
```

These text lines will set the default page length for print jobs to 62 lines. Copy default will be 1. Setup and priority requested will be "Standard". Print Server will be printed at the top of each page, together with the time and date, page number, and file being printed.

If the system manager wishes to change or add to these preset defaults, the instructions for doing so are found in Appendix F of the Print Server User's Manual. The users Defaults.Txt file requires the same format as does the system

manager's Defaults.Text file.

F.3 Maintenance of the Print Server Subsystem

When more print servers, printers, file servers, or printer setups are added to your installation, you may need to reconfigure the appropriate files. The instructions for configuring in Chapter 4 of this manual can be used for this procedure.

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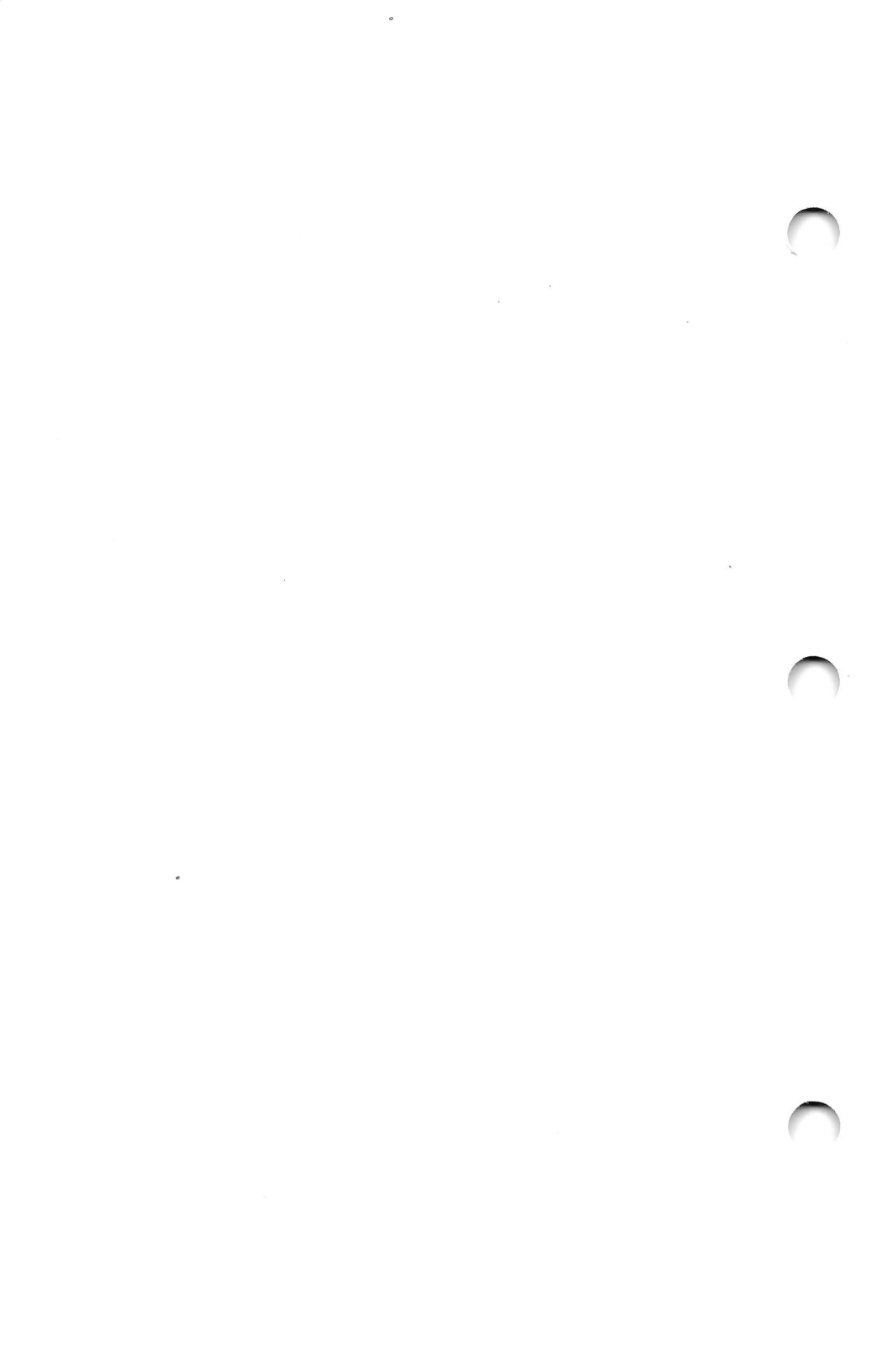
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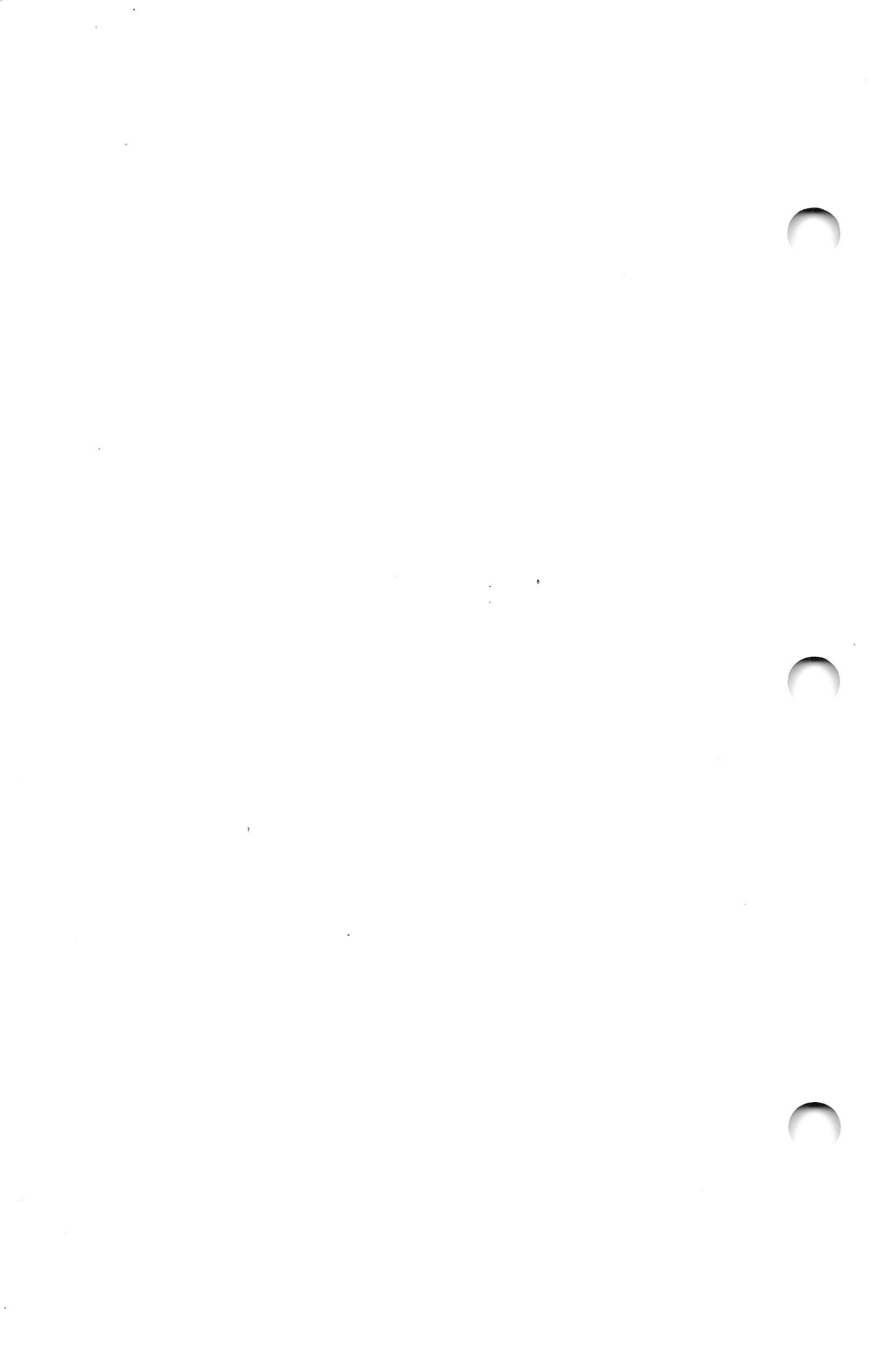
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General Information Manual	GA40-0100
PLAN 4000 Physical Planning and Installation Manual	GA40-0101
File Server User's Manual	SC40-0200
File Server Apple // Pascal User's Guide	SC40-0501
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File Server Installation and Operation Manual	SC40-0300
PLAN 4000 System Service Manual	LA40-0401
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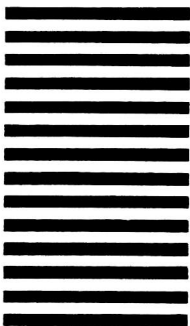
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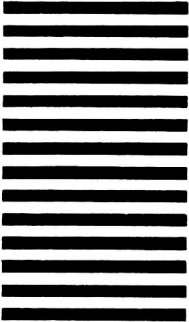
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